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ABSTRACT

As education becomes more and more specialized, the need for diversity within academic programs becomes greater. The solution to this uniformity, especially in the United States, has been that of the formation of consortia or other cooperative agreements between and among different colleges and universities. The province of Ontario, Canada, has many problems that may be solved by the creation of cooperative programs. In Ontario there is a system of extramural and continuing education which is competitive, essentially anarchic, and ill-adapted to the job of educating its yough. In its present organization there is little likelihood that the provincial system can fulfill its responsibilities of today, much less the vastly increased responsibilities it should assume tomorrow. Because there are dangers in centralization and separation from the other universities, a consortium is proposed rather than an open university. (Author/HS)

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INTER-UNIVERSITY COOPERATION

with special reference to
the universities of
Ontario

H.M. GOOD

Queen's University at Kingston

A brief submitted to the Commission
on Post-Secondary Education in Ontario
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WITH SPECIAL REFERENCE TO THE UNIVERSITIES
OF ONTARIO

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1. Introduction

Many believe that great advantages for higher education will come from increased cooperation between universities or colleges. These advantages include greater efficiency by lowering unit costs, introduction of programs possible only with shared resources, better adjustment to increasing specialization, more efficient pursuit of objectives as a result of the more precise definition which a cooperative program requires, and better adaptation of the system to changing demands upon it. There are, of course, those who would dispute any or all of these claimed advantages.

Support for more inter-university cooperation has been growing rapidly, especially in the United States. In a study initiated in the mid-1960's Moore (17) reported over a thousand consortia in the U.S.A. alone, with several hundred more pending. Most of these do not meet the definition more recently used by Patterson (22) in his list of only fifty-one major consortia with established programs and full time secretariats. However, Patterson's list excluded non-voluntary groups and hence does not consider any of the multi-university or multi-campus state systems, which have also developed their ccoperative programs greatly in the past decade. California and Wisconsin, two examples of state-coordinated systems, have been discussed in some detail by Paltridge (20,21).

The developments of recent years constitute a movement in higher education which has found expression, and a certain amount of stimulation, in a series of seminars and in publication of a newsletter for academic consortia for higher education (1). It seems likely that an American association of university and college consortia will be formed before long.

Although recent developments may be termed a movement, the tendency to consider consortia and co-ordinated systems of colleges entirely new is hardly justified. The movement has a longer history than many recognize. Consortia should be looked at in a proper historical perspective.

In fact, the interdependence of universities for both teaching and scholarship extends virtually over their whole history. This interdependence has been growing steadily and, though it has not always been clearly recognized, the universities have been steadily putting more of their resources into activities aimed inherently, if not explicitly, at cooperation. Among these are the scholarly (and to some extent the professional) societies with their associated meetings and symposia, the publication of scholarly journals, and the production and use of textbooks. The first two are aimed at rapid

dissemination of new knowledge and its integration into the disciplines, and the third at sharing the labour of preparing certain types of teaching materials.

It is difficult to see how any of these activities, long considered essential to scholarship, could be carried on without both moral and financial support from the universities. Few scholarly associations could continue if universities refused to send delegates to their meetings, or to allow their staff time and facilities to act as officers of the associations. Few scholarly journals could be published if all financial support derived from university subscriptions were withdrawn. Few textbooks would be written, or those written kept up-to-date, if the university did not encourage writing of books by staff and provide for the utilization of large numbers of books.

Consortia and co-ordinating systems in higher education are not, therefore entirely new nor have they only begun to increase in importance recently. Rather they are sections of a movement which has a long history. Even formal arrangements aimed at rather specific objectives have been common in universities made up of federated colleges, and informal co-operative tours overseas have long been established in America.

Universities have formed consortia to serve a wide range of objectives. This is made clear from the brief descriptions of selected consortia given in Section 5. However, these objectives have nearly all been for one or more of the following reasons: to obtain new facilities not obtainable by a single institution, to permit greater or more effective use of existing facilities, to increase leverage in obtaining grants, or to make more effective use of staff. The first three have so far been by far the most prominent though the last is considered in this study to be the most important.

To achieve any or all of these general objectives much more limited and specific objectives must be proposed together with a strategy for reaching them. For any one limited objective two questions arise. Is the objective inherently desirable? Can the available resources be applied better cooperatively than individually?

The first of these questions is not necessarily relevant to the issue of inter-institutional cooperation. However, we are dealing with a movement which has considerable momentum. It would be surprising if there were not occasions when advantage was taken of the momentum to push forward projects which have been inadequately justified. They may be projects which could be pursued cooperatively, but perhaps should not be pursued at all. Indeed, the conditions under which a consortium can now be formed invites the development of highly specialized fields of study sponsored by special interest groups.

This has implications for the organization of universities, and indeed of knowledge, which should be critically appraised.

There is more than a little evidence that these fears that the current situation may favour, or at least permit, a rather uncritical approach, are justified. One senior official of a large consortium has referred to the very large romantic element in the views of what a consortium can do. Another has said that the virtues of cooperation are taken as axiomatic. The literature of the movement is far richer in studies of organizational patterns and procedures than in studies of what the consortium has to offer and what costs or risks there may be in collaboration.

The issues are rarely simple and they become more complex the closer one comes to the teaching program which is the heart of the university's function. The activities of a university may be arranged along a spectrum from the purely administrative at one end to the purely scholarly (whether teaching or research) at the other. Most activities involve both administrative and scholarly decisions. Those which are chiefly administrative have simpler objectives, simpler measurements in determining how well these objectives have been met, fewer people involved in making decisions, and those involved in the decisions are more qualified by training and by temperament to take a long and comprehensive view. It is, perhaps, natural that by far the greatest number of cooperative activities is at the administrative end of the spectrum.

Collaboration in pure scholarship (i.e. in research as separated from teaching) is inherent in the scholarly associations and has been fairly well supported through special installations, research libraries, etc. The pedagogical part of the system has, however, received remarkably little attention. This could be because inter-university cooperation has little to offer to teaching programs. It may, however, simply represent the difficulties in getting the larger number of persons involved to define objectives, to agree on them, and to collaborate in reaching them. This is a triple set of difficulties. One cannot cooperate with someone until the objective has been formulated precisely and agreed upon. Yet, precise formulation of objectives is rare in university teaching. Moreover, teaching is a very personal thing and the exercise of working out a cooperative program poses threats to the feelings and the vested interests of staff. This problem was clearly recognized in a study in Brooklyn (19) dealing with the prospects for cooperation among eight institutions of higher education. The report said:

> "to the extent that cooperation among schools implies any dilution of its basic character cooperation will be resisted..... Even sharing or pooling library resources poses no serious threat to its identity as an

> educational institution. But, instructional cooperation can and does pose a challenge to the school. It is not surprising then that instructional cooperation among diverse institutions -- and the eight Brooklyn institutions are highly diverse -- confronts formidable obstacles."

Yet, of the various university activities which might be amenable to a cooperative approach, teaching should be the most important. It is the essential function of a university and the one on which most resources are expended. Teaching embraces most of the research which goes on. Even in the University of California, noted for its research output, a recent unpublished study showed that teaching (including individual work with graduate students) took almost twice as much staff time as did research unrelated to teaching.

It can be argued therefore that the most important question about university cooperation is this. Could it provide for better use of staff? Or if you prefer, would it provide better education for the students? Whether it can provide for better research and scholarly work is, of course, an important question but if due importance is given to graduate work this question is very largely covered by the previous one.

Arguing that the role of consortia in teaching, the very area which they have conspicuously avoided, may well be their most important one is not to argue that consortia should not concern themselves with greater efficiency through pooling of administrative procedures, libraries, etc. They should. However, the advantages of cooperation in these fields are so obvious and the costs and savings are so easily estimated, that there is no longer any argument.

The emphasis of this study is therefore on the question of whether cooperation provides for a better use of staff than can be achieved by institutions working alone. This is not a question which can be given a single, simple answer. It must be weighed for each project. A doctrinaire approach to co operation is not the answer. Indeed, there will be cases for which the balance sheet is very even, and probably more cases for which an argument considered by one for more cooperation would be read by another as against it. For example, some argue that cooperation will impose a gray uniformity over the whole system while others claim that cooperation encourages diversity. Some claim that cooperation makes the system larger, more massive and more resistant to change while others argue that the consortium is uniquely suited to encouraging change and adaptation.

The purpose of this essay is not to examine all possible cases of cooperation, but simply to review some of the basic considerations and to propose a reasonable and practical

approach. Three topics which seem especially relevant to the issues of cooperation, namely specialization, diversity and competition are considered first. Discussion of these topics is followed by an examination of what is taking place in several consortia, then by a discussion of what might take place in Ontario, and finally suggestions are made for an extended and revised approach to cooperation in Ontario. Attention will be concentrated chiefly upon cooperation in teaching programs. An absolute restriction to teaching is not, however, appropriate since most issues lie along the administrative-scholarship spectrum and have components of both.

Cooperation will be discussed rather than coordination. These words need defining since some consider cooperation as voluntary and coordination as applied by a higher level of authority. As used herein, cooperation means working together towards a single objective. Coordination means a distribution of objectives so that different objectives are pursued by arrangement. It is true that efforts at coordination have a cooperative component since there is a larger objective which is shared. However, I do not propose to deal with coordination except where it impinges directly on cooperation. This distinction is currently important in Ontario where most of the so-called cooperation has been voluntary coordination.

The discussion which follows is based more on personal judgement than on statistics. Relevant statistics are not generally available and the study plan did not permit either a statistical approach or a comprehensive comparative study. An attempt has been made to take a long view. Judgements are based on developments over the last twenty years and on predictions, admittedly subjective, for the next ten or fifteen years.

2. Specialization in the University

Specialization in the university is a large topic. There are interesting developmental changes in most scholars which make them broader as they grow older. This ontogenetic aspect of specialization, with minimum breadth at about the time the Ph.D. is taken has interesting implications but they cannot be explored here. Similarly there are important questions of the objectives of advanced education, and how much specialization is needed to achieve these objectives. That is, when is specialization self defeating. This issue will also be passed over lightly. What follows is commentary on the situation as it is, and as it appears it will be, and the implications for this for teaching specialized courses, primarily those at the graduate level. The suggestions may be palliatives rather than cures, but they are not less useful for that reason. In a rapidly changing world we may consider ourselves lucky to be able to ameliorate symptoms.

The relation of specialization to the organization of academic units for teaching and research is of special interest in Ontario. The Ontario universities form essentially a single tier of the educational system. This is in sharp contrast to California where there are the two distinct levels of degree-granting institutions--the state colleges and the University of California. Ontario has so far rejected the idea of junior and senior institutions with graduate work concentrated in the senior.

This has important implications for staffing and for specialization. The view held by many American colleges that smaller institutions will be best served by relatively unspecialized staff who do little, if any, graduate teaching or research has not been accepted here. The result is that all Ontario universities, including a number which will be small for some time, face all the problems of staff specialization inherent in graduate programs and research. The smaller ones will be most affected because they cannot have enough teachers in one discipline to provide adequately for advanced courses in all branches of that discipline. However, specialization has developed in many fields to a point where it poses problems for all universities. The small university is only marginally worse off than the medium size one, and looking ahead we may well ask whether even the largest can escape this problem.

Specialization has increased enormously in the past two decades and shows every sign of continuing to increase, though perhaps at a slower rate. There are several reasons for this increase. One is the rapid growth of knowledge. Another is the increased emphasis on graduate work. A third is the em-

phasis on "productive scholarship", a fourth is a combination of the good bargaining position of the professor, in what has been for years a seller's market, and the need felt strongly by some staff to restrict their field of effort in order to make a significant contribution quickly.

Specialization has indeed now proceeded to a point where the adequacy of the present organization of discipline groups must be questioned. There is currently a great deal of interest in inter-disciplinary studies. To pursue these effectively there is a high degree of specialization, but it involves resources based on two or more of the traditional disciplines and either a fusion of departments or close cooperation between two or more in one university is needed.

Organization of staff within a single university, and within a group of universities has a good deal in common, and indeed reorganization on each campus to provide for greater interdepartmental cooperation may be the most effective way of preparing for cooperation between universities.

The problems of organizing staff to provide rationally for increasing specialization are most acute for graduate programs but are by no means restricted to them. Ontario has, in general, adopted the view that undergraduate and graduate faculties will not be separated. Graduate programs have a direct impact on undergraduate programs, and vice-versa, since the graduate must be built upon the undergraduate, and both must compete for the time and interest of staff.

There is currently a reaction against increased specialization. Today's students ask that more attention be paid to the broad implications of knowledge and that new kinds of studies relating two or more distinct disciplines be opened up. There is some feeling that the very narrow specialist is hardly entitled to be called a scholar. Moreover, the very narrow specialist is less likely to be able to work in the interdisciplinary areas or even to associate himself productively with others in his own field. We are, therefore, pulled in one direction by the demands for competence in broadly based subjects (and also by an increasing awareness of the unity of all knowledge), and in the other by the demands towards ever-greater specialization. We are moving towards greater specialization while at the same time conscious of a need for less. Thus we must work toward a system which can accommodate greater specialization but can simultaneously provide for greater breadth. Are these requirements hopelessly imcompatible? In the following few pages it is argued that they are not and that a judicious trade-off between breadth and depth in training students and a carefully planned organization for using specialists effectively can go some way towards providing a workable and adjustable combination.

The organization into which specialists are fitted must be adapted to their levels and patterns of specialization. The specialization of a scholar can be thought of in terms of the proportion of his total effort--whether in formal training or in independent study--which he has put into a specific field. If we consider the fields of study arranged along a line like a spectrum and on each restricted region of the line (or field of study) we put a vertical bar representing the percent of that scholar's total effort expended in that field we derive a sort of energy-subject graph which may be called a specialization profile of that person. This specialization profile is useful in discussing both the training of students and patterns of cooperation between staff.

Figure 1 uses specialization profiles to represent the trend towards increasing specialization and the loss of broadly based competence which accompanies it. On the left is an approximation of Rennaisance Man. In the middle a pattern which approximates many programs of a decade or two ago, and on the right a suggested pattern for designing graduate programs. The right hand figure is also the basis of Figure 2. In all Figures a vertical cross-hatched band is imposed. This represents the material covered in a graduate course.

The graduate course is our most specialized level of formal teaching and bears an important relationship to the organization of specialized staff. In the 1950 pattern the graduate course shows two important characteristics. It is wholly within the field of specialization of one man and it extends right up to his level of advancement or specialization in that relatively broad area.

To relate the graduate courses to staff specialization in 1980 a decision must first be reached as to whether the graduate course should appear as it does in the 1960 graph. The very different shape suggested for 1980 clearly suggests that the author believes it should change, and in two directions --it should be broader and lower.

There are at least two important arguments for offering less specialized, i.e. broader, graduate courses, (1) a highly specialized course provides an inadequate base for the increasing specialization (often with inter-disciplinary implications) which the student will acquire. (2) The number of students in many of the highly specialized courses is too low to be either pedagogically sound or economically justifiable. Moreover a distinction must be made between specialized courses and advanced courses. When a course lies (as in the 1960 model) essentially within the competence of one man and is often therefore a one man course it may be highly specialized yet essentially elementary. A broader course at the graduate level, staffed by several persons, is likely to be designed more critically and the staff effort far better used.

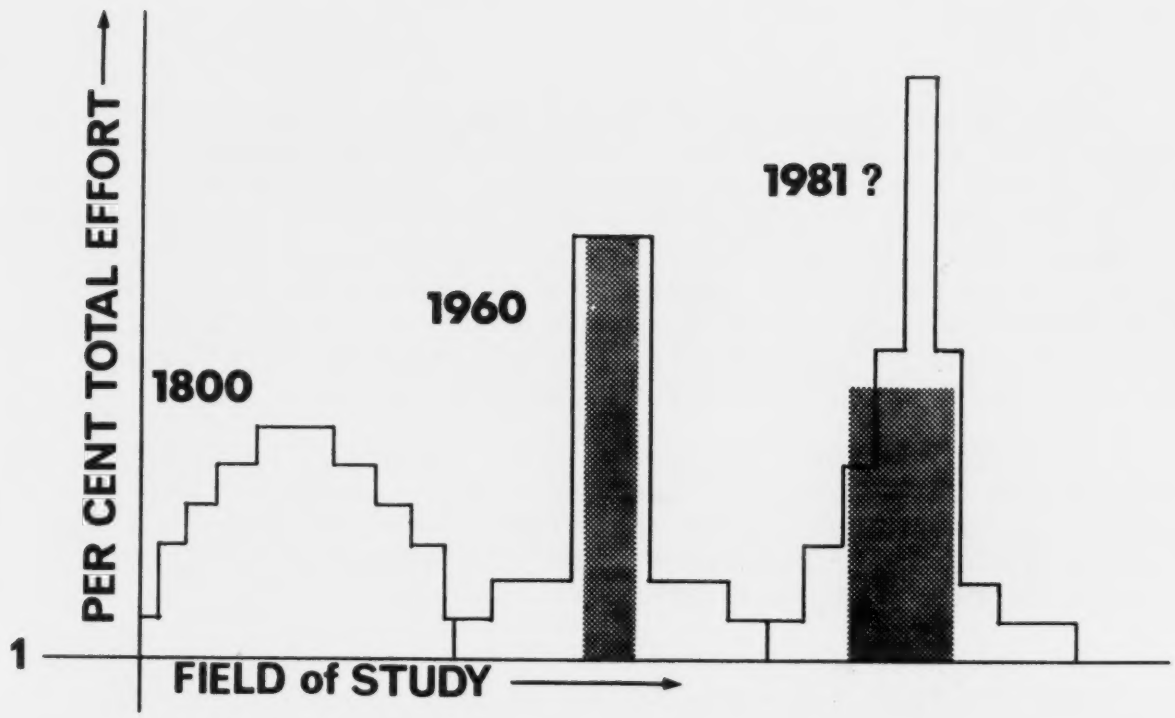

Figure 1. The trend toward increased specialization and the relation of specialization to graduate courses using specialization profiles as explained on page 8.

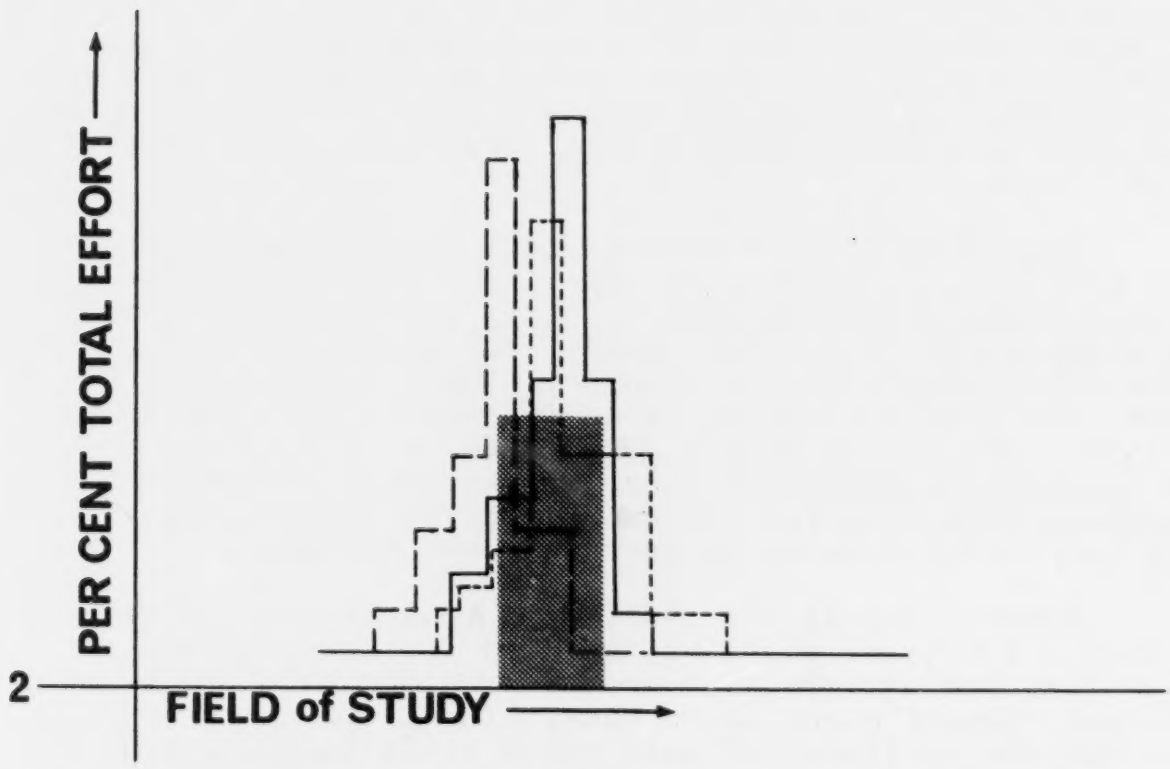

Figure 2. A proposed plan for presenting a more advanced, yet less specialized, graduate course based on the collaboration of 3 specialists. For explanation of the specialization profiles used see page 8.

The other features of these specialization profiles which should be stressed is the form of the step patterns at the sides of the tower of specialization. These can be thought of literally as supporting and buttressing against the need to shift the centre of gravity of the area of specialization. As argued below the importance of designing these deliberately when working out a graduate program is partly to provide for later shifts and partly, as outlined in relation to Figure 2, to allow for fruitful collaboration.

A solution for this problem is proposed in Figure 2 which shows how several staff members collectively (three in the example given) might cover the area of an advanced but relatively broad course. In this Figure the shaded area is again the breadth appropriate to a graduate course.

Acceptance of a pattern of specialization and collaboration such as that illustrated in Figure 2 need not imply that a given staff member would be in one fixed grouping. He might well be involved at any time in two or even three, but too many involvements would preclude most of the advantages of the system. These advantages should perhaps be enumerated. Each staff member has a narrower field of responsibility and can presumably reach a higher level of attainment in that field. A close association with several colleagues provides for continued updating in closely related fields so that without assuming direct responsibility for these, he becomes more broadly competent than in the present system where he must work much more on his own. The students taking a graduate course in such a group receive a rather less specialized, but a more critically prepared, course.

Proposing a model such as this for university staff members must not, of course, be taken as a suggestion that every university should attempt to staff its departments with people stamped out of a single mold. The objective is a general one which should be met when building a department but need not rule every selection of an individual for that group. It is quite possible to have a group made up of some who are narrow specialists providing these are balanced by some who have broader interests and better ability at integrating, if perhaps less effectiveness in pursuing new knowledge.

However strong are the forces towards greater specialization and however pressing the need for new patterns of organization, the universities are by no means helpless if they decide that changes ought to be made. The patterns of specialization and the attitudes of university staff towards it do not develop independent of the universities themselves. It is true that increasing knowledge has a tendency to increase specialization, but the pattern is very largely imposed by the programs by which staff are trained, coupled with the expectations which the university has of its teachers. The university system as a

whole is determining, if almost unconsciously, the patterns which staff will follow.

There are two ways in which the university might modify present patterns of specialization. These are to change the organization within which specialists work, and to change the attitudes of future generations of graduate students by modifying graduate programs.

If the pattern and degree of specialization described is becoming more general, then the need for reorganizing staff to take advantage of specialization without penalty of narrowness is clear. Considerable staff resources are needed for even one graduate course. Should these be provided in a single department or should they be based on a group of departments? If the latter, is it more functional to group together related departments in one university, or to count on collaboration between departments from different universities, or a combination of these.

This decision may, to a considerable extent, be left open for any institution and the appropriate solution will vary. It will depend on what kind of undergraduate and graduate programs the university wishes to offer, and the relative importance of these but it should not imply a cavalier attitude to either graduate or undergraduate teaching. One way to organize the offerings in a subject is to have a staff which is spread rather uniformly over the whole subject area. This can provide adequate competence in the whole field at the undergraduate level but only in very large departments would it simultaneously do so at the graduate level. A staff which has interests covering a wide range of topics should align itself with other universities if it wishes to offer graduate work.

A university might argue that it would be best to concentrate on graduate work in one field on the assumption that all of the staff are competent to teach at the undergraduate level. This is not an impossible proposition but it is rather unlikely to work well. For historical reasons a smaller institution is more concerned with undergraduate work and should continue to be so. It is both foolish and irresponsible for such an institution to design its departments basically for graduate education and research. A group formed primarily to do good senior level work is not likely to do junior level work well, partly because their interests are centered elsewhere and partly because elementary levels at the university must deal with generalizations and this requires a higher level of competence than is often acknowledged.

One way of solving the problems of the small, but highly specialized, department is for it to import a good deal of elementary teaching material which the staff are competent to discuss with the students, even if not competent to present well.

This possibility is discussed further in Sections 3 and 5.

The small, or even moderately large, department can cover a selected and limited research area well or it can do an undergraduate assignment well, but it is not likely to be able to do both. It should base its organization and staffing policies on doing a first class job on the undergraduate assignment and should count on collaboration with outside personnel to provide assistance with the graduate. As suggested above, it might be possible to reverse this and count on collaboration for the undergraduate effort but a collaborative approach to graduate teaching seems better because: (1) Graduate students require less formal instruction, (2) Graduate students are more highly selected, and (3) Graduate students are more mature and independent.

The problems of bringing in collaborators to work with graduate students are therefore minimal. Moreover, if graduate work is carried on in a department which is not highly specialized, the advanced work will cover a wider range of subject matter. This will, in the long run, have advantages for the education of undergraduates as well as for the graduates and staff.

The pattern of specialization in any one university should therefore be determined largely by the needs of the undergraduate program, and the kind of mutual support suggested in Figure 2 should be freely available either from other departments within the same university or from other universities. To achieve this objective we shall, in many instances, have to count on inter-university cooperation.

This proposal bears directly on the concepts of "centres of excellence" and "critical mass" which have been important in recent years in guiding the development of Ontario universities.

In the sciences particularly certain types of facilities are so expensive that they cannot be replicated casually. Even if we had a more highly developed inter-university system, coupled with the increased freedom of communication and travel available today, the location of the facilities would still mean a good deal, and the distribution of staff cannot be made entirely on the basis of balanced and representative departments. However, there is no proposal here to discourage all specialization in a university but only to argue that the specialized functions should not be allowed to over-ride the more general ones. Some degree of specialization is likely to develop in departments of any considerable size and it will often be desirable. Except in very small departments there will be plenty of scope to adjust to the special requirements of being either proprietors or guardians of a special installation.

The concept of "critical mass' in scholarship is a

good one. It is no more than a faith in the importance of intellectual exchange. But, as a policy of staffing a department it has had very limited success. It is true that many examples can be found in which fruitful interaction has occurred between colleagues deliberately brought together in one department. But rather more examples of failure are available in which the intentions to bring together a group in a related field in the hope of earth-shaking mutual catalysis resulted in the discovery that those concerned, while working in the same general field, had entirely different approaches or personalities and were effectively more isolated from one another than from colleagues in other universities. Assurance of mutual catalysis in scholarship demands a refinement of evaluation far beyond that which is currently feasible. It is something which emerges out of chance encounters among much larger numbers than one university can collect. The "critical mass" concept has not been applied very successfully in universities of average or small size.

A considerable measure of coordination must be applied where large and expensive research installations are made, and as suggested above, there is latitude in most universities' staffing plans to accomplish a degree of specialization for such purposes. However, academic "critical mass" is much more likely to result from voluntary organization of staff personnel than from a deliberate attempt to bring a group together. To a very considerable extent the concept of "critical mass" and "centres of excellence" are alternatives to a widespread collaboration in what is effectively a pooled staff from a number of universities. If one assumes that pooling is not feasible, then the "centre of excellence" may be justified but the alternative plan of pooling staffs merits more attention and trial than it has received.

The idea of a centre of excellence is based upon the belief in critical mass coupled with the unrealistic view that it can be created simply by physical juxtaposition of scholars of the same general academic field. It is more likely to work if a group leader is selected and he, rather than the department in which he works, has complete authority to select his juniors. But this not only negates the principle of democracy in the department, but also brings out the worst aspects of academic competitiveness. In turn it increases the influence of outside granting agencies which may, with the best intentions in the world, exert a strong and even sinister influence on departmental organization. This problem is discussed in some detail in Section 4.

Quite apart from an undesirable stimulus to competitiveness, it is virtually impossible to arrange fair and reasonable teaching loads in the department which has a heavy bias toward one part of the discipline it purports to represent. Even if it is permissable to have all elementary courses taught by the

same type of specialist, the interests of undergraduate students are not channelled narrowly along any one line and the rest of the department must carry an undue weight of responsibility for keeping up in a wide range of subject matter and for an undue weight of student counselling and teaching. While doing so they suffer from every disadvantage vis a vis grants for assistants, ability to attract good graduate students, travel funds, etc. These inequities are inherent in the system and occur even if those in the specialist group are ideal colleagues and responsible teachers. It is difficult to see how this system, which we have now been experimenting with for some years with limited successes and many problems, can adjust to the increasing specialization of the future.

The centre of excellence should also be looked at in relation to the adaptability of the university organization to new patterns of study, especially those now referred to as inter-disciplinary. The current popularity of these is based to a considerable extent on the fact that these areas are relatively unexplored. This in turn suggests that the organizational pattern of university disciplines has not been the servant of scholarship so much as its master and that it should be more fluid than it has been.

Ideally, one might view all scholarship as constituting a volume with any number of axes along which related subjects might be arranged. Thus Sociology, Psychology, Biology, Biochemistry, and Chemistry form such an axis of related subjects but any one of these also fits on other axes. For example, Biology, Geography, Economics, History.

The department, institute, or other administrative unit in a university should be conceived as taking in a part of this volume, the amount and form to be considered variable with time and to be chosen for administrative convenience. Such a system is as flexible as it can be and still provide for effective administration.

It will be difficult to obtain the level of flexibility needed and any development which fosters rigidity should be looked at critically. The concentration of specialists in centres of excellence has a strong influence toward a rigid pattern. If, for example, one university chooses to build a group with great strength in applied pollution biology and another chooses to develop an institute of population studies and if both are highly successful within their chosen areas their very success will, in a variety of ways, discourage the integration of these fields. The cooperative alternative to the centre of excellence does not require the same establishment, does not build the same pre-occupation with a specific field nor develop the same degree of vested interest. It may lose something in short term efficiency but it gains in versatility, fluidity, and adaptability.

There is already a trend towards pooling staff from different universities via increased, if still poorly financed and poorly planned, seminar exchanges. This suggests that given more adequate support, pooling of staffs and the associated inter-institutional cooperation might prove to be an acceptable, indeed a much more productive, alternative to "centres of excellence".

Regardless of any logic which this argument may have its acceptance depends upon the individual staff member. If he sees it as advantageous it will work, but against staff opposition, or even indifference, cooperation is a pipe-dream.

There are both advantages and disadvantages for the staff member. The first advantage is that he would be asked to take a much more restricted area for graduate teaching. An average staff member might, in conference with colleagues, be assigned preparation of four or five lectures per year at senior graduate level. The areas to be covered and the background to be assigned would be spelled out in some detail. This would be a reduction of 50-80% in the area for which the staff member would be responsible. In return he would have to be prepared to work out the material to be covered in these lectures with colleagues from several universities and would have to be prepared to travel to these universities to present his lectures.

He would thus become a much more narrowly specialized lecturer. However, he would be associated with a group who were so close to his interests that he could, by attending the preliminary planning session and some of the lectures of those in related fields, keep himself up-to-date over a broader field than he would manage through his own reading. He would, hopefully, be able to spend more time on the broad range of subject matter needed to keep in touch with his students, i.e. in the broad base region of Figure 1.

As a result of the larger community of scholars in one field, he would meet and work with larger numbers of staff and senior students who were directly concerned with his ideas and approaches. At the price of some travel time, he would have a much increased chance of integrating himself into a group which had a possibility of reaching a real and effective "critical mass". This group would form spontaneously rather than by master plan and would be more fruitful because it would not involve mis-matched personalities or philosophies. The quality and significance of the work done by the staff member should therefore improve.

It may be argued that this type of interaction is feasible now and indeed goes on, mediated in part by the scholarly societies. However, there is some disillusionment about the great annual meetings these sponsor. Inter-change of ideas goes on, but many papers are trivial and are rushed through

with inadequate time for presentation before an audience which is often not very interested in the specific topic. There is little or no time for fruitful discussion. This form of scholarly cooperation has done a good deal, but it is a conspicuously inefficient system. The very considerable resources might be better spent in small groups of cooperators. Indeed, the 1965 report of the Great Lakes Colleges Association says in relation to small inter-college committees "it is common to hear departmental groups say that the GLCA sessions spun off from regional or national meetings are more relevant and rewarding than the larger meetings".

What has been said above has implications for the organization of departments in universities and their relationship to specialization. As we move into more inter-disciplinary work, the department appears much more as a convenient administrative unit rather than as an association of priests of a certain craft. It follows that the subject matter to be covered in one department should be determined by administrative convenience though this will direct us to an organization which has much in common with current patterns and traditional departments. It is not reasonable to operate a department with fifty or a hundred persons, nor is it sensible to operate departments of less than 8 or 10. As specialization progresses it is likely that universities will come to have more departments, but this should be because they will need more staff and hence more administrative units, not because they are willing to let every special interest group organize as a department.

The organization and delimitation of departments is particularly important in relation to the development of cooperative projects. The history of joint efforts in the United States has been that they very frequently arise in relation to an academic fad often involving an area of immediate social concern. A new and specialized unit is created, and although this may initially start out as an inter-disciplinary one (forming in effect a bridge between two established disciplines), it is easy for the ends of such a bridge to become eroded to form an island. This is a development with which we are already familiar in the universities, and there is evidence that some consortia may further this trend which fragments knowledge while purporting to unify it.

Increasing specialization raises three problems for the individual university teacher.

1. Maintaining competence in an area of high specialization which he will teach at the advanced or graduate level.
2. Maintaining a level of competence in related areas high enough to permit fruitful cooperation with specialists in related fields.

3. Maintaining a level of general competence which will aid him in assisting students to integrate what they learn.

Given a limited amount of time and energy only a system of progressively narrower specialization, offset by a supportive overlap, can adjust to whatever level of specialization a subject demands and permit a staff member to meet these three problems.

Increasing specialization also raises problems for universities. They cannot grow to sizes which will permit them to cover all knowledge adequately and still retain the advantages of community even among the staff--much less among staff and students collectively. A rational size limitation implies a pooling of experts for advanced work if justice is to be done to graduate work and advantage taken of the good features of specialization. Acceptance of the need to pool staff resources relieves the pressure toward specialization at the departmental level which is implicit in the idea of a centre of excellence. This pressure must be relieved if universities are to fulfill their responsibilities to their undergraduate students.

Our universities serve many functions. Some of these, but not all, would be better served by joint action. This need not imply any serious loss of autonomy which must in any case continuously change in level and adapt to the conditions under which the universities operate. It does require a shrewder analysis of our various roles and objectives. The strategies for achieving these objectives may vary widely, but some of them at least, will demand more joint action than we have known to date.

3. Uniformity and Diversity

Uniformity and diversity, like specialization, appear regularly in discussions of inter-university cooperation. There is a general assumption that diversity is desirable, but a sharp division on whether cooperation within a group of universities would increase or reduce it. This situation invites a series of questions. Is diversity really desirable? Do we now have it? What factors determine the amount of diversity we have? Would cooperation between universities, specifically cooperation on teaching programs, modify the degree of diversity appreciably? If so, in what direction?

Any educational system wants to offer the best education it can within available resources. If we understand how this can be done and if it is best done in a certain way for all students, then every institution should do it that way and variations from the normal pattern are likely to be disadvantageous. Uniformity is not therefore necessarily a bad thing. However, the best in university education is not so easily prescribed. We do not know with confidence exactly what constitutes a good education or how to say that this educational process is better than that. Moreover, the students involved are highly varied. What is best for one will not be the best for another. Some diversity in institutions is required to look after diversity in students.

The case for imposing uniformity or letting uniformity develop in response to general pressure is therefore a weak one, though it may well become stronger if we are able to define our educational goals better and to understand better how to achieve them. On the other hand, the case for diversity has some solid support.

Universities must adapt to changes in society. This adaptation does not arise from periodic redesigning as with an airplane, but from continuous evolution, which like organic evolution, is based on variation and selection. This can go on within a single university but the opportunities for major variations are then limited. Adequate adaptation requires a measure of diversity between universities as well as experiments within universities. Adaptation must be achieved if the universities are to avoid the evolutionary fate of the dinosaur.

Another argument for diversity is that it favours stability. No biological system is quite as unstable, and as subject to disaster as the uniform population in which there is a heavy demand for one kind of resource, and a ready transmission of environmental stresses such as disease. There is historical evidence that this principle applies to universities. At any one time technical universities are subjected to

rather different pressures from those affecting colleges of art, liberal arts colleges, graduate faculties or medical schools.

On balance, the arguments for diversity come out well ahead of those for uniformity. The pro-diversity stand of most university people seems to be justified. To what extent is this belief in diversity expressed?

Looking at the current situation in Ontario there is little evidence that it is. Nor is this situation limited to Ontario. Paltridge (20) writing primarily about California says "there is ample evidence, however, that public institutions particularly those in the same state, strive for similarity rather than diversity. They have shown a tendency to practice imitation in the name of innovation". Changes in the New British Technological Universities toward what might be called the standard British pattern have also been noted.

The lack of individuality among our universities is revealed in discussions with applicants for university places. When asked which university they plan to attend some will have chosen one because certain of its departments are stronger than average, or because it is close to home, or because it is far away. Rarely is the decision made on the basis of a major and deliberate difference in educational objectives or methods. It might be argued that Scarborough College of the University of Toronto planned a major departure in educational technique by using television extensively. However, the television was used in essentially standard techniques of instruction. It could not, I believe, be argued that the present Scarborough student body has elected that college primarily because it offered a new type of educational program. Given Scarborough's location and initial lack of residences it has served a geographic constituency rather than a special type of student.

Trent University's dedication to the tutorial system coupled with its residential colleges and its lack of a strongly defined geographic constituency has made it far more of an experimental system, but there is some reason to think that the distinctiveness of its programs is being reduced. This indeed seems to be the usual pattern. York University initiated a somewhat unusual pattern and although traces of this remain in the organization of its departments and programs, the differences seem small today. The University of California at Santa Cruz started out only five years ago with a strong emphasis on the college rather than the department. This emphasis has not by any means disappeared, but according to some of the staff who have been there since the inception of the program, it has become less marked.

These examples of colleges drifting away from original plans are not cited in any disparaging way. If diversity

is desirable all the institutions mentioned deserve praise for their attempts to try out different approaches. The examples are cited simply to show that there appear to be strong pressures towards uniformity. To have a valid opinion of whether increased inter-university cooperation would add to or subtract from these pressures, or would be essentially neutral, we must try to understand what the pressures towards uniformity are.

Probably most important is the extent to which prospective staff members are put through uniform training and a uniform indoctrination in the values by which they are expected to guide their decisions. This is in good part what Jencks and Rieseman (13) refer to as the professionalization of university staff. It results from a highly competitive environment in which support for graduate students and research has been principally from outside the individual university and a professional has had to prove himself on a national and international scene. Thus, a young academic will always have been taught the arts of grantsmanship. He will, in most cases, have been taught that playing the game the usual way is a duty to his discipline, and he will have been taught how to compete for support and a place in the sun. He will not, in a majority of cases, have been taught anything about teaching or, what is more relevant here, to be interested in essential problems of teaching or experiments aimed at solving them.

Moreover, a good deal of pressure to play the game according to the rules of his professional group is maintained after he is appointed to the university. Even if he is lucky enough to be in a department which puts relatively little stress on the "publish or perish" attitude, his ability to get grants, hence graduate students, travel monies, and to some extent recognition and promotion, is almost always dependent upon his publishing. Added to this is the fact that he will immediately be overworked--in general the more so the more promising he is. He is forced to make choices about his priorities. These choices tend to be made according to the rules, and influences, and rewards, established in his professional group.

In most universities he is invited to take part in a graduate program and indeed this is part of the game--an essential part in the sciences where graduate students are also research assistants. In almost every case his responsibility for graduate work is far too wide because of the failure of our universities to adjust adequately to the problems of specialization.

This picture of the straight-jacket placed on each young academic as a part of his training and as a condition of his early employment has admittedly been painted in gloomy colours. Whether more gloomy than is justified is a matter of opinion. That the picture is in broad outline true has been said by too many to be ignored. The significance for our discussion is

that conditions drive the university teacher, whatever his potential for original approaches, towards the most expedient and uncritical teaching--i.e. towards accepting the values of his profession group and calling upon the material available in texts and symposia, and upon the courses he has taken as a student, for his guidelines in course material.

The politics of scholarship and of scholarly societies and government granting agencies advised by the leaders in the field, have therefore the effect of imposing a high degree of uniformity. The controlling and guiding views are those of the staff of the most important graduate schools or the boards of granting agencies who tend to be the same persons wearing different hats. Their ideas feed out into the system and are imposed partly by merit, since they are able men, partly by force of personality, since they are persuasive men, partly by their key positions in the system, and partly by sheer blackmail. You toe the party line or else! The result is that values and viewpoints, while not entirely static, are astonishingly uniform at any one time.

It requires a great deal of time and effort to initiate a new kind of educational program and it requires even more to maintain one with real individuality. When a different program is established it is normally the result of one man's ideas. He will initially gather around him a group who are strongly interested in the proposal and the experiment will get underway with great promise. Most of those involved will have chosen to strike out on their own and the initial organization in which they work is likely to be small and the pressures from discipline groups will be relatively ineffective.

With time most programs grow and more staff are brought in for replacement and for augmentation. The selection is usually on the basis of standardized approaches and will introduce, on average, those who know less about, and are less concerned about, the original concepts of the program. If the group grows appreciably the mere presence of substantial groups in the same discipline tends to re-establish the values and influence of that discipline. The effect is to dilute the individuality of the program.

The influence of the discipline groups is supported by the universities. They seek, and willingly accept, the opinions of those whom the system has brought to prominence often without consideration of whether the views of these people are consistent with their own standards and objectives. This is not to say that opinions from outside the university should not have an important bearing on evaluation. It is only that the outside opinions may reflect a widely accepted but arbitrary set of values and should be used only in conjunction with those of the university or college itself.

Another pressure towards uniformity to be seen in some

Ontario universities is the too extensive application of the formula system of support. This is a system which has great merit, but if faculty argue that the formula grant system must be applied to divisions between faculties, then to departmental budgets, then to course budgets, there will be political infighting on each campus for every dollar according to some conventional scheme and the possibility of any significant amount of risk capital is small. Educational experiments require such risk capital. If it is lacking, and a similar pattern of financing various subjects becomes established in all the universities of Ontario, we shall not only have increased uniformity but be in a financial bind of our own making which will prevent any serious attempts at diversity.

A third pressure is the extent to which common instructional materials such as textbooks are used in a common way. The emphasis here is on the common way, rather than on the common instructional materials. There are, for example, many areas in which a certain textbook is preeminent. It would be inexcusable not to expose students to this book. In a sense its very preeminence makes for uniformity, but this is an entirely justifiable kind of uniformity. It is equivalent to the early statement in this section that if one knows exactly what is best done, doing it consistently is the only justifiable path.

It is difficult and time consuming to teach most students to regard textbooks as conveniences rather than gospels. Unless a university teacher has both an interest in, and time for, some excursions beyond the texts a large proportion will depend on a textbook or at least on a textbook approach. The textbook approach covers the case of the man who says with truth "I do not use a textbook" but presents a set of lectures as though reading from a text. Some of his individuality may come through but as long as he feels chained to an orthodox coverage of the subject, he will offer essentially the same course that everyone else does. In spite of the claims that each new text has a different approach there are, in my subject at least, ten absolutely standardized ones for every one with even minor variation.

There are, of course, merits in a standardized approach. Students want a basis on which they can build. They do not want to find, one or two years after they have taken a course, that it omitted large amounts of essential material. There is a heavy onus on anyone developing a novel approach to do so critically and with responsibility towards his discipline.

The standardized textbook, or standardized set of readings, remains the basis, directly or indirectly, of our courses, especially of our undergraduate courses. These need not be used to impose any significant degree of uniformity, but given the pressures to produce teaching programs quickly and to cover the basis of the field adequately they have that effect.

Proposals for inter-university cooperation can justifiably have a mark put against them if they move us significantly towards still greater uniformity, or show promise of inhibiting any moves in the opposite direction. But further influence towards uniformity must be viewed in the context of a very high degree of uniformity now, and very little immediate prospect of a move towards greater diversity. Indeed, present trends seem to be toward greater uniformity as our newer universities, which had initially individual programs, are pressured by staff and environment towards greater uniformity.

The relationship between cooperation and diversity will be discussed further after specific proposals have been made about areas of cooperation which seem suitable for Ontario, but if the arguments put forward above are valid, and if cooperation could result in a saving in time because of a more rational pattern of specialization, then it is possible that cooperation could increase diversity by giving the instructor and student time to work together as individuals rather than as part of a system. At least there is no basis for a general assumption that cooperation should be set aside on the grounds that it would necessarily reduce diversity.

Indeed, one can go further and argue that the nominally separate, distinct, and autonomous universities have failed to provide significant diversity. There is reason to think that John W. Gardiner is right when he speaks of the need for "planned diversity" (8). Perhaps effective diversity cannot be maintained except by an effort at planning for it. If this is so, and if university autonomy is to be maintained, cooperatively planned diversity is the only alternative to directed diversity.

4. Competition and Cooperation

Competition and cooperation are not necessarily antithetical. Teams in an athletic league cooperate to provide a system in which competition can flourish. Nevertheless, too much competition, or perhaps competitiveness is the better word here, interferes with cooperation.

Inter-university competition both conditions and limits cooperation between universities. The rational control of competition so that it does not restrict cooperation unduly is not easily achieved by universities acting singly. It is therefore an appropriate activity for a collectivity of universities. Control of competition thus becomes an important cooperative project for universities especially, though not exclusively, for those within a single system.

Universities compete for students, for staff, for funds, and for prestige, though these are far from separate and distinct activities. The basis for much of their competitiveness is understandable, indeed laudable. It is that the university is concerned with what is first rate and with transmitting to a maximum proportion of its students an appreciation of what constitutes excellence, whether it be in the precision of a mathematical or scientific argument or in the elegance of an artistic expression. A university should always be competing with itself to achieve greater effectiveness. The critical stance which is essential to a university naturally fosters comparisons with other universities and a measure of competition with them.

It would, therefore, be foolish to argue that competition has no place in universities. A competitive system implies both an incentive to achieve some kind of distinction and a system for judging success. But whether competition is providing appropriate incentives, and correct judgements of success are questions which should be asked.

These questions will be considered in relation to competition for prestige, staff, funds and students. To answer the questions we must attempt to judge the university's current level of success. This is not easily judged but if it can be shown that competition now leads to substantial diversions of effort from the principal objectives of the university then it is reasonable to infer that the overall efficiencies of the universities are being lowered, and that the incentives and judgements of the competitive system are not satisfactory. Competition for prestige is dealt with first because, while prestige is a vague concept, it is of over-riding importance and bears directly on competition for staff, students and funds.

The prestige of a university or college influences both its attitude to itself and its stature in the outside community, and there is a feed-back system which provides for a compounding of prestige. This works through prestige favouring a better financial support and hence providing for financial latitude to try experiments, to adapt to new demands and to maintain high quality programs which are temporarily out of style. The university with high prestige is more likely to have self confidence, security and willingness to display either more or less conservatism than is currently popular. These attributes of independence attract better students which enhances prestige. It is no wonder that universities compete fiercely for this elusive, but by no means illusory, attribute.

Competitiveness is, in general, reciprocally related to prestige. Prestige gives a measure of security. Insecurity leads to a frantic and wasteful search for a place in the sun. There is an astonishing amount of insecurity in academic circles. This insecurity is inimical to efficiency within the university concerned and to the cooperation with other universities which might improve the efficiency of the whole system.

Insecurity provides for inefficiency through excessive competition. If an individual staff member, a department, or a whole university is so insecure that it feels that it must seize every conceivable opportunity to build its prestige then it will embark on all sorts of programs which it cannot do well. It is gambling that participation will get it more credit than it will lose from mediocre to poor performance. To the extent that the work of that institution is poorer overall because of the excessive diffuseness of its efforts, the whole system has been weakened.

Does this kind of competition take place? Anyone who has listened to debates about whether a certain university should or should not participate in a scheme knows that it does. In so many cases the argument for participation is little more than that the university should get its foot in the door now lest, in the future, this becomes a rather "good thing" and those initially in the picture will receive the largest share of the support available. Expand this example to cover the multitudes of new areas of study, and of new special laboratories and institutes, and the interference with the main work of the university is clear. A university which is already confident of its reputation is more likely to refuse to spread itself too much and can use its resources more effectively though there is little evidence that any of the Ontario universities have yet reached this blessed state.

Excessive competition to the point of wasted effort should be self-defeating and would be if the university system collectively and the community at large were sufficiently alert to inefficiencies and to waste due to excessive competition.

There is, however, evidence that this is not so and that a university profits competitively, at least in the short term, from the appearance of purposeful activity--the setting up of numerous and publicized research institutes or programs, the publication of large numbers of trivial research papers and the maximal contact, on any excuse, with public and governmental bodies. The positive feed-back in the prestige-support-more prestige scramble appears to be stronger than the corrective effects from diagnosis of waste effort or poor performance.

Perhaps in the long run the corrective effect will dominate, but in the meantime the system is operating with a built-in vicious circle which stimulates competition. This contributes to an overall waste of effort and a diversion of a large part of the universities efforts away from their principle objectives. The decline of teaching in the university is in no small measure attributable to this competition.

It might be argued that the decline in teaching has been fully compensated for by a rise in research productivity. Research is a proper role for the university and one in which some trade-off for teaching effort can be justified. However, before the trade-off can be made legitimate the nature and quality of the research as it related to importance in its subject area and value for teaching must be judged. To the extent that it is research of trivial value not specially adapted to teaching it may be considered a part of the competitiveness which is undesirable. No one will, I think, seriously question that a large proportion of the modern university's work is of this type though the proportion varies widely between institutions and disciplines.

It might also be argued that the effect of the type of competition described, while not wholly admirable, has been to increase society's support of the universities and that, even with some inefficiency, the investment will be repaid amply. There may be some truth in this but the complaints about priorities within the university are rising, the projected costs are rising even more, and it seems likely that if the universities do not police the efficiency of their systems, i.e. both their costs and the critical definition of legitimate objectives, they will bring themselves under such strong attack that very serious damage may be done.

Fortunately, the university system has sufficient influence, especially in the areas of evaluation of its own work and the control of the grants systems for research, that it can collectively modify the present system which stimulates competition without applying any effective penalty for over-competition. However, to exercise this control effectively the universities must be more alert to the fact that their representatives on research councils and advisory bodies are nearly all selected by a system which brings to the fore the most competitive members

of the university community. There is here also a positive feed-back. In a more competitive environment the more competitive research man makes a bigger name. He is nominated to represent his university. He has worked under and benefited from a certain type of competition and after playing the game according to certain rules for years he is not likely to look critically at the basis for these rules and the validity of the criteria for success.

Competition is desirable if competitive position is conditioned primarily by quality of work. The university is not a research mill which should take pride in the volume of research it does but only in the importance of that research or in its effectiveness in teaching. Under the present situation quality may count when the work is very distinguished but in most cases quantity outweighs quality in judging productivity.

This is a serious charge against the university system and raises important questions about the adequacy of the system of self evaluation. The criticisms made here are necessarily general because it would be inappropriate to single out specific cases for comment here. The above has, however, been written with specific examples in mind.

Competition for funds is, under the Ontario system, largely limited to a search for research monies and benefactors' gifts. The search for research funds has been discussed above in relation to prestige and the dangers inherent in the positive feed-backs in the system has been noted. The competition for funds from benefactors does not seem to pose comparable threats. Indeed, one of the things the universities lack is capital for new ventures. Gifts are often given without strings. Competition for this type of support is likely to further adaptation and the development of diversity.

Competition for staff is based on several factors. The desire of a university for a specific recruit to its staff will be based fundamentally on one or more of the following: a desire for an excellent teacher; a need for a specific type of man (whether it be for an administrative, teaching or research role) to bring balance to his department or faculty; a desire for a man who will form a "productive" research group. All of these are essential parts of the university's overall responsibility and anyone who can fill one or more of these needs with distinction will be much sought after. If a university is critical of its own programs and sees its needs clearly, it will be willing to put forward a considerable effort to get the man it needs. Since needs are likely to be similar in various institutions, competition must result.

If competition for staff is based on a balanced analysis of each university's needs then it should have no undesirable influence. However, if one of the reasons listed above

for recruiting a staff member is inflated out of proportion, competition for staff can initiate another potentially dangerous cycle. One might take as an example the statement by a Head of a department that the first requirement for appointment in his department was the ability to attract at least $20,000 per year in outside grants. If such an attitude becomes widespread, and the search for prestige presses in this direction, then competition will be limited to a certain type of staff member. This type of staff member is likely to bias the university towards appointing more staff of the same type. The balance within the department concerned can become progressively worse and the level of competition for certain objectives can rise without check. The longer this goes on the more difficult the re-balancing becomes. It is another example of a positive feed-back system which has done some damage and can do more.

Competition for graduate students varies sharply with discipline. In the sciences where the student is both colleague and laboratory technician as well as student, there is a very close relationship between success in recruiting graduate students and research productivity. This can have the effect of lowering standards significantly in that the number of students admitted can be more closely related to the available funds than to the number who are qualified. At times students will be admitted who should not be. Lowering of standards may also occur because there is a great demand for the better student who may be offered a dozen or more places. Onerous demands, such as language requirements for higher degrees, may be dropped to make programs more attractive. While there has been evidence of this type of thing in the past ten years it has not been serious because at the advanced and professional level there is a rather immediate and corrective feed-back. A cheap degree is too quickly diagnosed and its disadvantages made clear.

The effect of the competition for students is to leave some departments with graduate programs largely filled by incompetent students. The standards of a graduate class cannot be maintained if it contains four or five marginal students and no good ones. The discrepancies between the better and poorer graduate schools may therefore reach major and regrettable proportions.

Inter-university competition is a good servant and a bad master. It is good in so far as it reflects an effort on the part of each university to use its resources more effectively than others do to achieve a higher standard of excellence. It is dangerous in that it may detract from critical self appraisal and direct a large part of the university's effort into work of secondary importance or even irrelevance. In this latter connection, the dangers of positive feed-back or vicious circles especially in the systems for supporting graduate work and research should be watched carefully.

Action to avoid the dangers of over-competition can best be taken by the universities collectively. The control of competition is therefore an important area of inter-university cooperation.

5. Patterns of Inter-Institutional Cooperation

This section reviews a series of examples of cooperative arrangements. The reviews are brief and the list short. The consortia studied were chiefly voluntary ones, i.e. consortia of private colleges or universities. They varied widely. For example The Committee on Institutional Cooperation is an association of very large institutions, mostly state supported, while the Claremont Colleges are small and private and, although grouped on what might be called a single campus, are essentially independent. The University of California is large and highly integrated. It operates under a single president though there is considerable decentralization for most decisions. Each of the others described also had quite distinctive characteristics. Although forming a small group, those studied represented the range of consortia in America fairly well.

The study was not intended to include any detailed statistical investigation or comparison of patterns of organization. At least eight doctoral theses are now in preparation on consortia, almost all on organizational aspects. A number of these are listed in the April 1969 issue of "The Acquainter" (1). One is described as "working towards a theory of inter-institutional behaviour". This illustrates the approach from which a number of the studies are being made.

As the term consortium is used in the United States it does not usually embrace the state systems, i.e. the groupings which exist by virtue of some statutory arrangements for co-ordination. American consortia are, therefore, chiefly made up of private rather than public institutions. However, the Ontario system has characteristics of both the private groups and the state systems. California was, therefore, included and to a lesser extent Indiana, Wisconsin and New York were looked at though no detailed comments are made on them.

The purposes of this part of the study were two: to show what degree of consistency there is in approach and objectives, and to determine what areas are most frequently of interest to the consortium and whether the pedagogical implications of cooperation are being studied.

The consortia visited are described by tabular summaries and by the diagrammatic "activity spectra" shown in Figure 3 which comes at the end of this section. These "spectra" are based on some twenty areas of activity which were rated as being of no, little, appreciable, or great concern to that consortium. These four levels of concern were rated 0, 1, 2, 3 and a bar of the appropriate height entered in the figure. The value 2 does not, of course, represent a calculation showing twice the level of activity or expenditure shown by 1. The

values were assigned in consultation with officers of the consortium.

The tabular and graphic descriptions are augmented by brief notes based on visits to the headquarters of the consortia. No attempt has been made to classify the consortia studied and the order of their presentation in this report is not intended to have any significance.

Tager

The North Texas Association for Graduate Education and Research has to date been concerned primarily with graduate education in engineering, with a strong bias towards the needs of industry and especially towards the aerospace and electronic industries which have major plants in the Dallas-Fort Worth area. Some 60 graduate courses are offered this year to member institutions (including interested industrial plants), via a micro-wave television system. All lectures, save for an occasional one which cannot be given at the time needed are given live and all students are in direct micro-wave telephone communication with the professor during the lecture. A student need only lift a telephone which hangs beside his desk to ask for repetition or clarification of some point. The lectures are simple classroom productions. A professor sits before a class of 10 to 20 students with a pad anchored on his desk directly below an overhead camera. A student camera operator can send out either the picture of the pad, or of the professor, or of some object or wall diagram the professor may wish shown.

Tager

Date Founded: 1965 Institutions: 7

Size Range: 1000-9000 Total Students: 24,000

Annual Budget: Approx. $310,000.

Sources of Funds:
1. Member Subscriptions: $112,000.
2. Gov. Grants: $172,500. (for new 3 year project. Not included in the above budget)
3. Assorted Fees: $170,000.
4. Leases: $26,000.

This system has been very successful and extensions into the undergraduate teaching have been begun. More may follow. Staffs in physics from all member universities and colleges have agreed upon a core curriculum at the graduate level and progress towards core curricula is being made in Biology and in Business. It will be extremely interesting to see whether

the techniques applied successfully to instruction of mature, experienced and highly motivated students, already at the professional level will work well at much less advanced levels.

This consortium is unusual in that it provides for a form of free interchange of students via "electronic residence", because it uses a very effective and sophisticated inter-communications system in a very simple and unsophisticated way, and because it is primarily aimed at graduate teaching. Although the courses are shared via television and may to some extent be planned by several people they are not cooperatively given in the sense of having a pool of experts from all or most of the institutions work out the content and share the teaching load. They do not, therefore, conform to the pattern of shared specialization suggested in Section 2.

The pattern shown in Figure 3 shows that Tager has specialized more in graduate teaching than has any other of the consortia described but that it has also considerable programs in other areas and, as its graduate offerings become established, time will be available to explore other ways in which the member universities and colleges can cooperate. The variation in size and financial backing suggests that the whole group can be very significantly strengthened through a cooperative approach to a much wider range of courses than has so far been attempted, though the question of the suitability of this type of instruction to the junior levels remains to be answered.

C I C

The Committee on Institutional Cooperation, which has had offices at Purdue but is now at Suite 970, 1603 Orrington Avenue, Evanston, Illinois, 60201, is also concerned primarily with graduate work but in a very different way from Tager. Interest has centered primarily in special programs such as biometerology or advanced research training in dentistry, or an advanced institute in Far Eastern or Slavic languages, or in the travelling scholars program which takes the graduate student to the equipment or the instructor best suited for his special program. The bulk of the successful C I C projects have come in these special programs and relatively little has been done on undergraduate programs although C I C has been concerned with these and has published a series of reports on "Developments and Experiments in College Teaching" (4). Most of the projects described in these reports have, however, been carried on at one member university and their impact on the whole system appears to have been modest. The special projects at graduate level seem, therefore, to represent the main thrust of the C I C to date. This is perhaps not surprising in view of the very large size of most of the members. The average staff is nearly three thousand. Problems of specialization and the need for cooperation are far less acute in such large institutions.

C I C

Date Founded: 1958 Institutions: 11

Size Range: 10,000-40,000 Total Students: 225,000

Annual Budget: $100,00 + special grants

Sources of Funds: 1. Member Fees: $99,000.
2. Gov. Grants: variable

In a sense C I C has been directed by circumstances, if not philosophy, towards a program which might be described as icing on the cake rather than the basic cake mix. Indeed, it is a working rule of the C I C that each project must be funded essentially separately and externally. A major move towards cooperation in the undergraduate field must wait a change in this rule. However, the case for cooperative teaching is weaker in such large institutions. Certainly, the bulk of voluntary consortia differ from C I C in that they are either aggregates of small institutions often with acute financial problems, and always with problems of specialization, or at least have a number of such institutions among their members.

Ontario

The universities of Ontario do not form a consortium in quite the same formal way as do most of the American examples described, but Patterson (22) lists the Committee of Presidents of Universities of Ontario as meeting all of the criteria which he has set up for inclusion in his directory of academic cooperative arrangements in higher education.

CPUO

Date Founded: 1962 Institutions: 14

Size Range: 1000-20,000 Total Students: 90,000

Annual Budget: $600,000. approx.

Sources of Funds: Members' subscriptions

The Ontario system has a measure of statutory coordination imposed on it by the Department of University Affairs and the Advisory Committee on University Affairs. It has also a major voluntary coordinating organization in the Committee of Presidents with its subcommittees and affiliates. As suggested by the title (Collective Autonomy) and the substance of the second annual report of the Committee of Presidents (5),

there is a strong feeling in academic circles in Ontario that voluntary cooperation will work best. Ontario already has, in effect, a common system of admissions, a library system which can be easily shared, a computer coordinating committee, and a plan for transfer of graduate students as well as a considerable coordination of special fields chiefly through the Ontario Graduate Council. A proposal made in 1969 for a reconstruction of the Committee of Presidents into a Council of Ontario Universities with a considerable increase in secretariat and with increased participation by the teaching staff of the member universities recognized that further centralization of some functions would be profitable. Indeed, if the function of research into teaching methods suggested in a current draft is accepted, it could direct a good deal more of the joint efforts of Ontario into projects more closely related to undergraduate teaching. However, this would not necessarily follow. The series of C I C reports on experiments in method have not resulted yet in any significant increase in cooperative undergraduate programs. This does not seem to be just because of the size of the member universities. Henry Acres, President of the GLCA report a comparable discrepancy between agreement in principle following joint study, and subsequent action.

The cooperative system of Ontario is still in its infancy, and it is difficult to predict how it will develop. The changes in the role of the C P U O and its associated committees have been rapid. A meeting of discipline groups sponsored by C P U O and held May 11, 1968 recognized that many Committees of Heads of Departments had already formed and invited these to formulate systems of coordination and cooperation. Results from this meeting have so far been modest, but analysis of what such discipline groups might do has been going forward. As an example, the Committee of Heads of University Departments of Biological Sciences has submitted an analysis of current patterns of specialization in the departments represented and a set of proposals for widening the definition of the discipline and for providing for better coordination and cooperation.

Indeed, the situation in Ontario is developing with such speed that it is risky to attempt to characterize it. The attempt made to do so in Figure 3 suggests that graduate studies, special areas, libraries, financial and administrative arrangements are, as in the United States, the chief areas of activity and that instruction has not been an area of major concern. Indeed, in Ontario we are more concerned so far with coordination than with cooperation.

California

The University of California is a single institution with a moderately centralized administration. It has one president (supported by several vice-presidents, deans and special

assistants) a joint senate which is a confederation of the relatively autonomous senate divisions on each campus, and a single salary scale and fringe benefit system. Under the current Master Plan the University of California is charged with providing university education to the most able eighth of the appropriate age group.

The University of California

Date Founded:	1868	Institutions:	9 campuses
Size Range:	4,000-28,000	Total Students:	105,000
Annual Budget:	$1,000,000,000.	(of which perhaps $20,000,000 is devoted to the centralized consortium aspect)	
Sources of Funds:	State taxes, Federal Grants, fees, gifts, and sales of services		

There is little mandatory cooperation in the California system but through joint committees of various kinds there is a good deal of voluntary coordination and some cooperation between the campuses of the university. This is aided by an open-line telephone system which makes a colleague in a distant campus as available for discussion as one on the same campus. Each campus has a good deal of autonomy regarding academic organization and programs. Thus, the new Santa Cruz campus is based on a residential college system and programs of courses quite different from those at Berkeley or U.C.L.A. A diverse approach to education is clearly not precluded by the centralizing influence of the Office of the President, though as mentioned in Section 2 it is difficult to maintain in the face of certain common pressures unrelated to the organization of the university itself.

Comparison between California and Ontario is invited by the fact that they are state systems of roughly comparable size. However, to make the comparison valid one should also include the system of state colleges in California. These are degree granting institutions which take the second and third most able eighths of the age group. The remainder discontinue their education after secondary school or go to the community colleges. There are supposed to be open doors between the sectors of the academic system but these are perhaps more unlocked than open. The section of Figure 3 dealing with California refers only to the university.

The coordination of all these sections of post-secondary education is vested in the California Coordinating Council for Higher Education on which the three levels of post-secondary education and the public are represented. The difficulties in

integrating these three strata appear to be growing. Inter-strata mobility is appreciable but not as free as some would wish. Graduate work has been concentrated in the university but there is increasing pressure to permit graduate programs in the state colleges and programs at the master's level have been introduced on a considerable scale. However, doctoral programs have not been approved except when an agreement has been made for a joint doctoral program involving a college and a campus of the university.

The Coordinating Council provides a measure of coordination between the three sectors of higher education but this is regarded by many as quite inadequate. In "Challenge of Achievement", a 1968 report of a committee chaired by Jesse Unruh, and reporting to the California legislature the following is said, "California's higher education is at once highly stratified and highly fragmented. No single agency has authority and responsibility for state-wide policy development, the establishment of new institutions, the approval of new programs, or comprehensive financial planning" (25). A suggestion of a much tighter integration on a regional basis was made but has had little support in the University of California itself.

The California experience in inter-institutional cooperation and coordination is valuable for study by any group now faced with the need to develop patterns of its own, but it is in no sense a system in which all the problems have been solved. Had Ontario accepted the recommendations of the Spink's Commission (24) that a University of Ontario be formed modeled on that of California, we should have still had most of the problems of inter-institutional relations to face. This is not to deny that, as suggested by Figure 3, California has a more highly developed system of cooperation than has Ontario. It has, for example, a unified program for extramural and continuing education courses, and a much more highly developed intercommunication between different campuses.

KCRCHE

The Kansas City Regional Council for Higher Education differs considerably from any considered so far, though it has, like Tager, a regional basis which cuts across the university-college and the public-private classifications. It differs from Tager in that it is not directed towards a single limited field but rather to applying the idea of "all for each and each for all" across almost the whole spectrum of university and college work. There is, however, as yet, and in sharp contrast to Tager, only a modest commitment to graduate work.

KRCHE

Date Founded: 1962

Institutions: 18

Size Range: 500-12,000

Total Students: 35,000

Annual Budget: $1,250,000.

Sources of Funds: 1. Members Fees: $72,000.
2. Gov. Grants: $1,000,000.
3. Special Grants: $160,000.

KRCHE currently stresses experimental approaches, and through a unique conference telephone hook-up is able to let almost any group form an inter-institutional conference at any time without leaving their campuses. The staff of KRCHE regard their job as primarily one of facilitating ideas which may develop when staff get to know one another and there is a central organization with risk capital to develop and test an idea.

The majority of the members of KRCHE are small private colleges. For these an ability to achieve economies of scale, to share expensive facilities such as computers, to have an organized access to federal funds, and to meet the problems of specialization and updating of staff are all critical issues. KRCHE has been something of an organizational centre for the consortium movement in the United States.

KRCHE is of interest to Ontario, but not because its position closely parallels ours. We have small universities but they have a better form of financial support than the private American colleges and we have quite a different kind of problem re specialization--one which is more concerned with our ability to do good graduate and undergraduate work simultaneously. KRCHE is, however, looking at joint curricular planning, and at joint undergraduate programs more than most of the consortia described here and their progress in these areas should be followed.

Great Lakes Colleges Association (GLCA)

Date Founded: 1961

Institutions: 12

Size Range: 900-2,700

Total Students: 20,000

Annual Budget: $900,000.

Sources of Funds: 1. Members Fees: $120,000.
2. Gov. Grants: $300,000.
3. Student Fees: $475,000.

GLCA has been concerned almost exclusively with undergraduate teaching. In this it differs sharply from Ontario, CIC, and Tager but has more in common with KRCHE and Claremont. The members are all private institutions and therefore draw from a fairly homogeneous upper middle class stratum of society. Their traditions and clientele urge them towards high quality and fairly generalized education with emphasis on culture and social responsibility. It is, therefore, understandable that the two major categories of GLCA projects are study abroad and study in large urban centres. In 1969 about 125 students took part in the GLCA programs overseas and a much larger number did some study abroad through various college programs. The programs arranged by the consortium do not include western Europe because there is already a high level of interest and activity in travel to that part of the world. GLCA programs are available in Colombia, Japan, India, Yugoslavia, and Lebanon. A coordinator for each program is found on one of the campuses and in several cases there are resident representatives in the foreign country. Students from any campus may participate in any of the programs. The principal costs are borne by the students.

An Urban Study Centre is operated cooperatively in mid-Philadelphia and a centre for the study of the arts in New York. Joint programs in marine biology have been arranged in Santa Barbara. In 1969 some 275 students took part in these programs.

The main thrust of GLCA has, therefore, been to widen the range of offerings to undergraduate students, especially in terms of international affairs, arts and urban problems. Some work has been done on cooperative study of teaching methods and joing development of curricula. A report "Programmed Instruction Learning and College Teaching" was published in 1970 but has had relatively little impact. Henry Acres, President of GLCA, has used this report as the basis for a paper on the way in which a study project can be initiated, designed, funded and completed, yet have nothing develop from it.(2)

Claremont

The Claremont Colleges differ from all of the other consortia discussed in that they form a cluster of independent colleges located on what appears to the visitor to be a single campus and with certain shared facilities, principally the library and some of the administrative offices. The graduate school is a separate institution but shares many staff with the colleges. The colleges are primarily liberal arts colleges and their association has a good deal in common with the federated colleges of the University of Toronto or Oxford, or with many other universities which have grown out of the association of established institutions. The pattern is in no sense unique, though it is perhaps more common today to find new colleges are

being formed when a university develops with college divisions as at the University of California at Santa Cruz.

There is, therefore, no geographical separation of the colleges at Claremont. They occupy one compound "campus" which, is not too large for a functional university. The feature of the Claremont organization which strikes the visitor most forcefully is the extent to which autonomy of the colleges has been maintained and the common activities played down. Claremont is a university community with six colleges totalling some 4500 students, of whom some 900 are registered in the graduate school. This school is part of the university centre and has a staff which is, in part, distinct from that of the colleges and in part is drawn from the staff of the undergraduate faculties. In general each college has its own departments though in a few instances several colleges operate a joint department. To a limited extent there is integration through the graduate school and through committees representing specific disciplines. Staffing and curriculum are college activities and a considerable amount of redundancy, sometimes in small classes, has been accepted as a reasonable price to pay for the privilege of autonomy.

Coordination of effort in each discipline is, hopefully, achieved by field committees. These may be very active and successful or they may be inert over periods of years. The idea of organizing university departments as has been done in most universities including Oxford, Cambridge, and Toronto has obvious appeal to the graduate school, and a trend towards a greater centralization of administration of the disciplines is seen and accepted by a good many of the staff. However, any rapid move in this direction would be resisted, probably successfully, by the college staffs who have the power to block such a development.

Cooperation between the staffs of Claremont Colleges is therefore modest in spite of the fact that all are on one 'campus', that they share a graduate school, and that the total community is only the size of a small university. The reasons for this markedly independent, sometimes almost isolationist, stand seem to be that most of the staff are not preoccupied with graduate or senior work and have therefore not felt the pressures of specialization to any great extent. The colleges want to preserve an identity and a distinct approach which they feel might be lost by too much integration. The Claremont Colleges are relatively wealthy and no severe financial pressures have so far been evident.

The loss of identity through cooperation is not, however, a clear cut issue at Claremont. Courses are open to any of the students in the Claremont system who can justify to their dean a request to enrol in a course given by another college. One professor said that the existence of other departments

in his discipline has freed him from the need to give a traditional and balanced set of courses and has permitted him to develop a program which is more distinctive than he would have felt justified in offering in any single department. Paradoxical as it may sound, cooperation can apparently reduce pressures towards uniformity and aid in maintaining diversity though this is clearly not an invariable result.

Claremont drew its inspiration from Oxford. This is illustrated in the words of James A. Blaisdell, first president of the Claremont Colleges, who wrote, "my own deep hope is that instead of one great undifferentiated university, we might have a group of institutions divided into small colleges somewhat of the Oxford type--around a library and other utilities which they would use in common. In this way I should hope to preserve the inestimable personal values of the small college while securing the facilities of the great university. Such a development would be a new and wonderful contribution to American education." The interest which Blaisdell expressed in Oxford has been continued and in 1966 a considerable deputation from Claremont visited Oxford to learn something of its federated structure. These discussions have been recorded in a book entitled "Dialogue on Higher Education" (12). One cannot, however, read this book and reflect upon the present organization of Oxford and Cambridge without feeling that the Claremont Colleges have set too much store by college autonomy and have failed to separate out those things which the college can do best from those which the university community collectively can do rather better. The organization of all those in one discipline in a single department has not prevented Oxford or Cambridge, or a variety of Canadian universities, from making good use of the college system, though this is not to argue that changes in the power and influence of the colleges has remained unchanged at any of these universities.

The Claremont Colleges have been rather generously supported financially and have drawn from well-to-do sectors of society. Whether in the next few decades they will continue to be able to operate as they have in the past with the inefficiencies inherent in the fragmented college system only time will tell. There is in Claremont a very considerable amount of experience of professors working together on cooperative teaching projects and programs and this will be of interest to Ontario if we progress toward cooperation in teaching. However, because of the physical nearness of the Claremont Colleges and their small size, their situation is not one which throws much light on the major problems of our universities.

Claremont Colleges

Date Founded: 1925 Institutions: 6

Size Range: 375-1300 Total Students: 4,500

Annual Budget: $4,500,000. (for university centre and Graduate School)

Source of Funds: About 4/5 fees and 1/5 grants.

Inter-University Biology Teaching Project*

In October 1969 the Nuffield Foundation made a grant of £80,000. "for the setting up of a two year project to evolve new methods of teaching biology at the university level with particular reference to self instruction, employing, where appropriate, audio visual and programming techniques." (5a)

The project involves the Universities of Glasgow, Birmingham, London (Queen Elizabeth and Chelsea Colleges), Bath and Sussex. The project will "attempt to combine biological expertise with educational technology".

The proposal is to identify areas of teaching where restricted individual contributions might be most useful and to produce modules of work not exceeding 15 hours (exclusive of associated laboratory time). These modules are grouped into three categories which Dowdeswell describes as follows, (5a)

"A. Bridge courses

As their name implies, these are intended to span some of the outstanding gaps between knowledge acquired at school and that needed for first-year university work. A typical example is the sequence on "Developmental Biology" being produced at Glasgow.

B. Technique courses

These are concerned with the acquisition of essential skills that, at present, demand repeated demonstration by a lecturer which is wasteful in both time and manpower. Unlike Bridge courses, these are not associated with a particular phase of education but are intended to be used at any point in a biology course as the need arises. Thus, at Bath a module is being produced on "Aseptic Techniques", while one on "Electricity for Biologists" is under production at Birmingham.

C. Main courses

These are modules which differ again from Bridge courses in that they are intended for use at any stage of a university biology course. Being relatively short, they could be incorporated in an existing programme without necessitating undue reorganization. The module on "Enzymes" being produced by London should prove useful in a wide variety of contexts."

*This project had not come to the author's attention when this essay was first written. It is therefore of special interest to compare the directions taken by the British project and those suggested independently for Ontario on pages 47 and 48.

Each module is being produced by one of the participating universities acting essentially independently. The type of presentation will vary but expensive systems such as closed circuit television are being avoided.

It is hoped that at least some of the materials produced will be available by late in 1971.

	Claremont	GLCA	KRCHE	California	Ontario	CIC	Tager
T.V. Teaching							
Team Teaching							
Curriculum Planning							
Staff Conference							
Tel or TV Links							
Disadvantaged							
Exchange of Students							
Study Abroad							
Extramural							
Shared Library							
Shared Facilities							
Teaching (Graduate)							
Supervision (Graduate)							
New Programs							
Institutes							
Visiting Scholars							
Exchange Lectures							
Faculty Improvements							
Joint Senate							
Service to Industry							

Figure 3. Relative levels of activity in twenty different fields of seven consortia.

6. Inter-University Cooperation in Ontario--Some Areas of Special Concern

The discussion which follows will be centered on co-operation in teaching. This is not as restrictive as it might appear. If we consider the objectives of a university as education of its members, service to society, and the discovery of knowledge we must recognize that these are not fully separable. Discovery of knowledge is closely related both to education of the members of the university and to service to society. Education of the members is the major part of service to society especially if those involved in programs of continuing and extramural education are classed as members. Cooperation between Ontario universities in research unrelated to teaching, or in service to society unrelated to teaching, are significant issues but they are not issues which can be permitted to dominate.

The universities objective of educating its members can be subdivided into the three parts of undergraduate, graduate and continuing education. These are somewhat artificial distinctions since some senior undergraduate instruction may overlap with graduate work and with continuing education as well. However, the organization and approaches to these three divisions are different enough that each should be discussed separately in the present context. For each the question is essentially whether the program can best be pursued by universities acting singly or by groups of universities acting cooperatively. For which parts of the educational function does the single university appear to be the logical unit of organization?

These topics will be discussed in the sequence of undergraduate education, graduate education and continuing education. This order is the reverse of that which one would take if one wished to consider first the one to which a cooperative approach seems most important. On the other hand, it is a sequence which permits logical development of certain ideas.

Undergraduate Education

Undergraduate education is defined here rather narrowly to include only intramural courses leading to a first degree. It includes both specialized and honours courses but the bulk of the attention is directed to the general courses, and to the introductory courses especially, since these constitute the largest single part of the instructional effort. Extramural courses of equivalent level to these are excluded because the manner of offering them differs, as do the students taking them, and they are discussed later under the heading of Extra-

mural and Continuing Studies.

The possible role of inter-university cooperation in undergraduate education is closely linked to the manner of teaching, and this to the nature of the students, to their previous training in high school, and to the philosophy of university education which one adopts. The cooperation which may develop in Ontario will take some years to have any significant effect. Some view of how educational patterns should develop, coupled with some reasonable guesses about how they will, are prerequisite to considering what, if anything, might be advantageously done cooperatively. This is in effect to look at various predictions of where we are headed over the next decade and to select an acceptable and likely pattern. We should not slavishly follow what has been predicted or suggested for other systems but the same ideas crop up repeatedly in "Education at Berkeley" (18), Undergraduate Instruction in Arts and Science at Toronto (15), and "Campus 1980" (6) to name only a few of the fairly recent reports.

The principal thrust of most of the proposals made in these reports is to make undergraduate programs more highly adapted to the individual student, to involve him more actively, and to emphasize the development of his capacities as a student rather than his capacity as a repository for information. These thrusts come essentially from two ideas. First, that we should respect the individuality of the student more than we have. Second, that education is a continuing process and that the job of the university is merely to launch the student on a voyage of independent study, not to supervise that voyage to the end.

One may question either or both of these attitudes. The cult of the individual as expressed in much current educational writing represents an excessive, almost pathological, pre-occupation with individualism. But the universities are faced with the fact that these ideas are firmly established in the primary and secondary schools. It is clear that universities could not today abruptly impose a new set of values upon the students even if they were convinced that those the student held were wrong. They must at least begin where the students are. Nor can the university alter the main course of scholarship with its attendant changes in amounts of knowledge or techniques of handling information.

Educational programs require several years to design, several more to test, and still more to implement fully. Universities should therefore try to foresee the trends of education. The educational changes we discuss here will effect only students graduating after 1975. The approach taken in Campus 1980, to look a decade ahead, is the only responsible one. It bears with it a responsibility to plan with a good deal of latitude for adjustment to changing conditions.

The objectives of undergraduate education are: to interest the student in study, to train him in critical method, to provide him with the theory and information needed to continue to advanced work in the field of his choice. These are all essential components and none should be given priority over the others. We have, however, in many cases given priority to the third. This represents an imbalance which should be corrected.

The idea of deeper involvement of the student, promoted in most recent reports on university education, is aimed at correcting such an imbalance. There seems to be quite adequate evidence that the involvement develops both interest and critical approach.

Involvement of students is not easily attained in a highly structured course. The student must be challenged to define his interests and then to pursue them. The lecture does this poorly and this seems to be the real reason for the criticisms directed at the lecture method of presentation. It is not an inherently inferior method but there has often been failure to use it appropriately.

Lectures may be of various kinds and may serve different purposes. At least three "types" may be recognized though most lectures, and all good lectures, are hybrids of these types. They might be called the informational, the interpretative, and the inspirational types. The problem of many lecture series today is that they contain an undue amount of purely informational material. Not only can much of this be obtained by the student in other ways, but it should be if he is to be taught a useful and effective approach to self study. Too much informational content in the lecture can be not only redundant and wasteful of teacher time, but it can prevent the student from deciding for himself what he needs to know and learning how to get this independently from the library or other sources of information.

The textbook, as an alternative to the informational lecture, has a good deal of merit. If a student should develop a high capacity for individual study he must learn to make use of books. Undoubtedly a greater use of texts rather than lectures would have the two useful effects of freeing teacher time for other types of work with students and of training the students to use books more effectively and more independently. However, the textbook is not the equivalent of the lecture in all cases. The lecture has the following advantages: the material may be presented simultaneously to both eye and ear; presentation can be paced; there is more effective emphasis than in the written work; movement can be incorporated; there is a clearer relation to personality.

There are two major drawbacks to the lecture. It must

at present be scheduled on a timetable and it cannot be reviewed at the will of the student. Looking ahead, and accepting a slight sacrifice in the personality aspect of the lecture, both these drawbacks can be avoided by using filmed or video-taped lectures.

Whether texts or live lectures, or some form of canned lectures (which may be regarded as animated texts), are used to fulfill the role of what I have called the informational lecture the trend in university teaching suggests that new forms of textual materials are needed for the more individualistic approach to which we are clearly committed for the next decade. The pendulum may well swing back after that though the cult of the individual has too long a history in our society to expect that it will soon.

The form of these new textual materials is already presaged in the spate of paperback textbooks now available on relatively narrow topics, the development of the single concept films for schools, and the interest in what are sometimes called mini courses for university work. These are much longer and more advanced than the single concept films but much shorter than even one-semester courses. These short texts and the mini courses, which are only in their very early stages as yet, are aimed at offering the student a lucid and relatively brief introductory account which he can master through independent study if in his reading and discussions it is made clear to him that he requires competence in this field.

Revision of courses over the next decade will, therefore, in all probability involve the following.

1. A reduction in formal lecturing
2. An increase in informal instruction aimed at encouraging the student to develop his own study programs.
3. A critical definition of the basic material which students must cover at each stage to be able to move on to more advanced work.
4. The development of new text materials aimed at facilitating 2 and 3, e.g. mini courses, selected readings, etc.
5. Increased use of "canned" lecture materials which can be used independent of a timetable, i.e. development of the animated, audio-visual text.

What role might a university consortium play in facilitating these developments, or at least in experimenting with them to determine their desirability? We have, as argued in the introduction, always depended upon a large measure of inter-university

cooperation, sparked by commercial rather than an educational interest, to provide such materials. Undoubtedly, this kind of cooperation will grow. A conscious effort to develop such material, without commercial support, may not be justified. On the other hand, there is a great deal to do and the approaches should not always be screened through a commercial and profit making system. The best may be deleted in this way.

We cannot expect that the individual professor or small group within a department can make more than modest contributions to production of new teaching materials. The load on professors is already too high for that. Nor can we expect that the commercial interests will do the best job from an educational point of view. There seems, clearly, to be an area in which consortia of several universities willing to put up some risk capital could do very useful work towards developing new instructional materials.

It should be noted that these would be in relatively small units such that a wide range of possible combinations of this material could result. The material in any one unit would be dictated by the logic of the subject matter and would therefore be standardized but this is a level of standardization imposed by the logic of the discipline. A total program which is less standardized than those now given would be possible on the basis of permutations and combinations of the units of these newer types of teaching materials. The belief that such activities of a consortium would inevitably foster reduced diversity is therefore unfounded.

This approach has two added advantages. It fits well with the picture of increasing specialization developed in Section 2 and it provides for preparation of a good deal of material which would be of inestimable value in extramural courses and continuing education. The need for new materials for these purposes is urgent.

Specialization is relevant to introductory courses because they require masterly generalization which requires deep understanding especially when organizing material for initial presentation. However, working informally with a student demands less mastery of subject matter. This suggests that we might profitably separate the two roles of teaching which have been described elsewhere (11) as instruction and coaching and that by so doing we might very significantly improve our teaching while spending less on it. There is an enormous amount of time spent in preparing largely informational lectures and a large proportion of this is redundant. In some subjects the same information is presented in lecture form dozens, perhaps even hundreds, of times every year in Ontario alone. This represents an enormous waste of professorial time, a scarce and expensive commodity. It is a waste which cannot be justified when there is a very great shortage of direct, informal work-

ing with the student.

It should perhaps be emphasized again here that we are talking about informational lectures rather than inspirational or interpretative ones, with what might be called telling rather than teaching. There is, however, enough of this type of instruction to justify some effort to reduce redundancy.

In relation to specialization, the individual teacher might well instruct in a much narrower field than at present, and be associated with colleagues from the same field in other universities in preparation of materials which the student can handle essentially on his own. His total teaching role consists of this limited responsibility for instructional material plus a considerably increased direct contact with students studying the material he and others have prepared. Because these materials could, under such a system, be kept very up-to-date and would cover a wider area than many one-man courses do, the teacher could learn a good deal more from his teaching than he can under the present system.

An added advantage of the approach suggested is that there is built into the system a requirement for critical evaluation of the materials to be used. The essentials can be validated and the trivia rejected. The importance of doing this in some fields can hardly be overestimated. For example, one can find material in current grade 10 textbooks in biology which has no meaning whatsoever in the course. It appears to be there because from 1880 to 1910 it was an important part of the evidence for Darwinism. Certainly since 1935 it has been of little interest to students of evolution and for perhaps 20 years now of almost no interest to anyone except the historian of biology. Far better evidence of entirely different types has now replaced it. Yet, it lingers on because no one has weeded it out. Comparable, if less outrageous, examples are available from current university programs.

Undergraduate teaching appears from the notes on selected consortia given in Section 4 to have been considered one of the least likely areas for a productive cooperative approach. This seems to be because the trends outlined at the beginning of this section are by no means generally accepted, because few staff have the time to initiate new programs while carrying a full load of old ones, and because few staff want to submit their ideas to searching debate or to risk a heavy investment in what may prove to be an abortive project. A measure of discontent with what we now have, a degree of confidence in what might be done, and enough security to allow one to put other things aside and work at such a project are all needed. These are not provided in the present system which overemphasizes competition, demands too much in breadth and depth combined, and generally fosters a considerable insecurity in the younger staff members who might be expected to want to try new things.

Discouragement of innovation may not be the universities deliberate policy but it is a direct outcome of some of its methods.

Whatever the potential advantages of cooperation in undergraduate teaching may be, it must be recognized that it would probably be inappropriate in many subjects. Even in areas such as science where it has a good deal to offer, it should be initiated experimentally and only for parts of the total program. However, some experiments in cooperation aimed at producing undergraduate teaching materials should be initiated promptly. These may well develop along the lines suggested by the current Inter-University Biology Teaching Project (5a).

Graduate Education

A case for inter-university cooperation in relation to graduate education was implied in Section 2. However, this dealt almost exclusively with responsibilities of the teacher for competence in his discipline. An attempt will be made here to look at the graduate education in more detail and from the point of view of the student as well as the staff member. The discussion is, however, based on that in the section on specialization.

The Harvard committee report "General Education in a Free Society" refers to "the college standing in direct almost mirror-like relationship to the state of knowledge, responding to its movements, changing as it changes". Undergraduate education is now conceived in rather more general terms than this quotation suggests but it is an apt description of graduate education whose objective must be to bring a student to critical understanding of the current state of the discipline he has chosen. In undergraduate training attitudes and methods are important and some compromise with comprehensiveness of material can be justified. At the graduate level one expects highly qualified and devoted professionals. This requires building on the interest and critical ability developed in the undergraduate program but makes no apologies for also demanding high standards of comprehension and comprehensiveness. There are, however, tensions in graduate education which make it difficult to realize these objectives. Knowledge is expanding and specialization is increasing rapidly. At the same time, the development of knowledge quickly makes much information and certain concepts obsolete or redundant. The professional must specialize if he wishes to become competent but if he specializes too much, or if he specializes in areas which are side issues in his field, he may be ill-trained for maintaining an adequate level of competence and thereby effectively barred later from work which he would like to do. This tension between specialization and over-specialization is most marked in those disciplines which change most rapidly. It constitutes

one of the major problems facing graduate education and one of the most inadequately resolved at the present time.

The solution appears to be to develop an understanding of the essential new developments over a broad range of the discipline concerned. This is best done by offering a very up-to-date set of courses covering material selected with great discrimination in each university which offers graduate work. If these lectures are of the standard implied by the Harvard report's description, they will simultaneously serve for invaluable and efficient continuing education of the staff. The questions inherent in this proposition are who will exercise the necessary discrimination re subject matter and who will give the lectures?

The picture of rational specialization in Section 2 suggests that any one staff member can give only a small group of lectures. If this is accepted and coupled with the proposal that over-specialization should be avoided, it follows that a considerable pool of talent would be needed for any one course. It is assumed here that for administrative convenience lectures would continue to be grouped into courses, though this may be an unnecessary complication imposed by our system of evaluating graduate students.

Use of a pool of teachers for one course is not only inherent in the idea of narrow specialization with planned overlapping of fields, but can in many fields be shown to be practically a requirement today. If I consider my own field of specialization (diseases of plants) I would, for any one graduate course, like to draw personnel from five or six of the fifteen universities of Ontario, and from more than one department in some. If those to be concerned with such a program were brought together to argue a core syllabus, and the organization of a program to fit a multi-university system, and if this were done with a strong emphasis on what is likely to be most appropriate several years hence when present students become practicing professionals, I believe we should have a very much better program than any now offered in Ontario and probably a better one than available anywhere today. If such an approach could improve the current best, its contribution to our poorer programs would be enormous.

The need for debate on what constitutes a suitable graduate program is clear and is currently a concern of many groups. It is a major issue in the department which I work, and it is a concern of the professional association of plant pathologists. I have on my desk a request from the Canadian Phytopathological Society to propose a rationale for the training of future plant pathologists. While approving the action of a professional association in setting up a debate on this matter, it seems to be that the universities should take the lead in examining this type of problem.

There will be at times clashes of personalities or of vested interests in the cooperative approach. However, the experience of the United States with commissions to re-examine and re-draft high school curricula has been encouraging. A great deal of trivial material has been removed and sometimes one, sometimes several coherent and rational approaches developed.

If in the various subject areas (perhaps each defined initially as appropriate to one course) we could achieve cooperative design of the program the next stage of assigning responsibility for lectures would be natural and easy. With the level of cooperation and of inter-university visiting which would be implied, there would also be a natural tendency to form many more inter-university advisory committees for research projects and theses. Because the members of these committees would be more consistently competent in the area of the study, the quality of advice to the student and ultimately the quality of his work should improve.

If these results flowed from a recognition of the desirability of cooperative action at the graduate level the problem of centres of excellence and critical masses would be solved by this system rather than by attempting a geographical concentration of experts which has not proven a generally effective system and has grave implications for undergraduate teaching and for departmental morale. The concept of critical mass is a useful one, but the centre of excellence is a concept which ignores the degree of specialization we are now facing, the present state of communications, and the responsibilities to undergraduate education.

The costs of an inter-university organization are appreciable. A good deal of work must go into the designing of a program suitable for several universities and travel implies lost time and other costs. Against these costs may be set the gains from a critical reappraisal of the field by a group of experts whose total competence far exceeds any which can be put together locally, an improvement in instruction by greatly reducing the field for which each is responsible, a more effective system of collaboration in graduate supervision, and much less dependence upon the dubious system of small centres of excellence.

One factor not referred to in the preceeding paragraph is the impact of such a system on diversity. This is not a major issue for graduate work. The course work, or formal instruction, is all that is being considered here and this forms a modest part of most graduate programs. Where it does not (as in a master's degree based only on course work) the emphasis should at this stage be on the responsibility to the discipline not on its adaptation to the individual student. A good deal of option is of course available in any system.

Another problem is that of integration of the material covered. This also is not a major issue for graduate students as it would be for junior undergraduates. Development of a rationale for each course or program is inherent in the system proposed and this should be made clear to the student. With such a general outline a student at this level can be expected to do both the integration of individual lectures and any additional independent study needed to fill gaps in his background or unavoidable gaps in the program.

Extramural and Continuing Education

The importance of extramural and continuing education (defined here to include summer school courses) is growing and is likely to continue to grow. There are several reasons for this: the very much larger number of people interested in doing university work, the vastly increased cost of the university system, the need for periodic retraining of professionals of almost every type, the increasing feasibility of effective instruction away from the campus. An example of this last are the television classes operated by Tager in industrial plants.

The university system in any administrative unit such as Ontario should reappraise its off-campus and summer term offerings from at least two viewpoints. (1) Are the offerings adequate in terms of variety and coverage? (2) Are the offerings adequate in terms of quality? In the context of this study these two questions raise another. Could a cooperative approach assist the universities in meeting their responsibilities?

The answers to these questions are not reassuring. What follows constitutes a rather severe criticism of extramural offerings in Ontario. However, this criticism is not aimed at extramural departments or their directors who can only work within the system defined for them by their universities and made available to them by their colleagues. They have worked diligently and devotedly and are only to a minimal extent responsible for the situations described critically below.

The material offered extramurally by the Ontario universities in programs outside their walls, or even outside their normal programs, is pitifully inadequate in range. One need only consult with teachers trying to get a reasonably specialized degree as a basis for teaching the subject of their choice to know how true this is. Most course offerings are at elementary levels. The need for more advanced courses has been recognized by Departments of Extension and some advanced courses are offered but complications of geography, the difficulty for the laboratory sciences to offer any but the most elementary courses outside the regular program, and the unwillingness of staff to put effort into the extramural programs have all kept the range of offerings down. Staff have some reason to hesi-

tate to offer advanced courses since the quality of much of the extramural work is now suspect and there is often real reason to feel that a class of properly prepared students will not be put together.

The present system is both competitive and inefficient. When a certain third-year course is offered at one university it may by chance be offered at several others in the same year, all to classes well below a realistic size. Then, for several years, this course will not be offered since all those who offered it found the response discouraging. The situation is bad enough that students complain. University departments are trying to do something about it through their directors of extension and Committees of Heads. For example, during 1968-69 the Heads of Departments of Biological Sciences tried to put together a cooperative program of moderately advanced courses which would be available at one university or another on an agreed upon and published basis. Any student could then plan a program to cover the main fields of biology at the honours level. This program in biology relates only to summer school and it has had only modest success in rationalizing the system. Local forces still seem to dictate most of the decisions and some redundancy and irregularity persist. The field of continuing education and of updating has hardly been touched.

Medical schools in Ontario collaborate to some extent in continuing education for doctors but the organization of this and other updating programs is in its infancy. However, there is now enough cooperation in Ontario aimed at offering more, and better coordinated, extramural programs to show that the need has been recognized by at least some sectors of the university community. But there has not been any serious attention paid either to defining the university's collective responsibility or to modifying the present system in any major way.

We now do what is most feasible in the light of a competitive viewpoint. We only attempt to do what will be financially self-supporting and what can be justified to the staff as not compromising standards of senior courses in their discipline. In terms of any overall objective the answer to our first question must be that offerings are not adequate in variety.

The quality of extramural offerings is variable and difficult to evaluate. The students tend to be both more mature and better motivated than the average intramural student. On the other hand there is a lower percentage of top level students in the extramural classes. This is understandable since the consistent class leader and scholarship winner is likely to be carried along into university even if there are financial or family problems.

Perhaps the most valid judgement on the quality of the offerings comes from those who have taught the same courses extramurally and intramurally. It is rare to find anyone who will rate the extramural course ahead of the intramural, and many consider it little short of a disaster. This arises not from the quality of the teacher, who is the same person, but from a variety of causes. The student has frequently had a major break in his studies. He may have been out for long enough that the whole emphasis in the field has changed. The course is often rushed and there is not time to bring him up-to-date and then to carry him on to the same point his intramural classmate would reach. When we add to these the tendency for the most outstanding scholars to abstain from extramural teaching because of interest in research, a tendency for smaller universities to emphasize extramural courses, either for their money making or advertising value, and the fact that essentially no effort is made to accommodate the style, the time available or the content of the course to the student situation (i.e. to the fact that he is out of touch, out of date, and with perhaps an inadequate background of which he is quite unaware), we must conclude that the extramural program in Ontario is to say the least second-rate.

This is not to denigrate the efforts of those who have worked hard year after year to take extramural courses or to suggest that they are not far better educated than they would otherwise have been. It is to suggest that given the interest and dedication of most extramural students we could offer them something very much better.

The third question posed asked whether a cooperative program supported by several universities, or by all the Ontario universities, holds out hope of giving a better extramural program than we now offer. An answer to this question can best be suggested after four subsidiary questions have been considered. (1) Are there special problems for the extramural student which require, or at least make advisable, somewhat special methods of teaching? (2) Is it reasonable to offer all the needed programs from any one university? (3) Is there an important connection between the extramural or summer school student and his "alma mater"? (4) Is there a considerable number of courses now operating which are below the economic level, or which might be better taught to a larger class with significantly greater resources spent on preparation of the teaching program.

The answer to the first of these questions is an unequivocal yes. Both the summer student and the entirely extramural student are carrying on an interrupted program. This has increasing implications as the courses become more advanced. A major requirement of such a course is to build up the necessary background before proceeding. Almost invariably more time will be needed than for a normal course at the same

level. Often less is available and no special effort is made to build up the background. I am aware that such an effort may be made, but I am convinced it is relatively rare, and often little more than a pious gesture.

In addition to the problems of background the extramural student is often isolated from the teacher. A very much more careful and more time consuming preparation of teaching materials is needed than for a normal class. In fact much the same material is used and often with less time for presentation or absorption.

The problem of the quality of present offerings is not hard to validate though obviously one hesitates to cite examples. It is important to realize that these problems are more serious as one approaches the higher level courses which are perhaps the major need today.

The answer to the question about one university offering an adequate range of courses on its own is that it can not. Staff are rarely anxious to do extra teaching and, if anything, this feeling is more definite in the larger universities. A heavier proportion of extramural work therefore goes to smaller universities, who have a much smaller and less specialized, and sometimes less qualified staff. There is really no possibility that any one university in Ontario could provide an adequate range of extramural courses.

Would an extramural student lose significantly if his program were built up of blocks taken from various universities or from one centralized service operated by a consortium? If the blocks were taken in different but uncoordinated universities, they might not fit together well and he would suffer. But for a mature student doing his studies in short periods while busy with a job and perhaps a family, the importance of the extra-curricular side of university life is of quite another order of magnitude from what it is for the regular intramural undergraduate. For continuing education, or up-dating, the college atmosphere, the alma mater, means little and the coordination of courses can be provided as well or better by a central agency than it is now within a department or between groups of departments on one campus.

There is now a significant number of extramural courses which are under-subscribed. This number would be far greater if more attention were paid to offering sequences of courses, some of them quite advanced and suitable both for degree purposes and up-dating of professionals. The only basis on which these courses can be justified is to offer them through only one system, offering only one such course each year, or perhaps every other year, in the province.

A major revision in extramural programs is needed. Is

a cooperative approach by all the Ontario universities desirable?

A single extramural program center, supported by all the universities, would have the following advantages.

1. It would simplify the campus structure of the individual universities advantageously by removing an aspect which contributes little satisfaction to students or to teachers and poses a good many knotty academic problems.
2. It would permit the offering of one set of integrated courses covering a much larger area, including up-dating courses for professionals.
3. It would increase the suitability of the program for individual study in two ways. It could arrange to draw from the member universities those teachers equipped by talent and interest to do a first-class job under the difficult circumstances of extramural instruction and, because classes were pooled and redundancy eliminated, a very much larger effort could be put into preparation of materials for the classes which were to be offered.

If such an organization were formed should it be independent of the other universities--in effect following in the steps of Britain's Open University? Perhaps this will prove an appropriate final arrangement but it is, I believe, vital to maintain a close liaison between the extramural services and the regular universities lest the extramural become isolated and establish programs and standards which do not match those offered intramurally. Moreover, the current idea of the scholar-teacher might be difficult to maintain in the extramural unit. It is difficult to see an Open University in Ontario developing a satisfactory permanent staff other than administrative.* However, if a professor found in one university were occasionally assigned the responsibility of preparing

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*Since this essay was written the author has had the privilege of visiting Britain's Open University, and later, in Canada, of hearing Dr. Perry, its Vice Chancellor, discuss the way it was created and why a separate distinct and full fledged university was the only feasible solution in Britain.
Any centralized structure for extramural work can be designed only after its responsibilities have been rather carefully defined. It has been argued here that it should present three types of courses: courses at the level of a general degree; Honours level courses which can be used also for up-dating of professionals; professional improvement courses--probably non

and supervising a course for extramural students he would continue with his graduate students and professional colleagues. He would be the most useful type of extramural teacher because his extramural work was an interest rather than the interest of his life. The consortium approach is therefore suggested as the best way of initiating reform in Ontario extramural programs and extension of the benefits of extramural education to a wider clientele.

It should, however, be stressed that a single centre for designing and organizing extramural courses does not imply that there need be centralization of the locales in which these courses were offered. It would continue to be convenient for many students to take them on the campuses of the universities. They could also be offered in secondary schools or community colleges as demand suggests is appropriate.

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*(cont'd)
credit.
Some of the courses suggested here would be best given at a university, especially when laboratories are needed. A completely separate organization is not, therefore, desirable. Moreover some of the courses are fairly advanced and a sizeable pool of staff would be an advantage. Finally the consortium approach gives freedom to seek for new staff for specific assignments almost at will. When one considers the very challenging assignment of teaching in a somewhat remote way it is clear that many courses will be mediocre even when given by carefully selected staff. Much more trial and error in finding the best staff is needed than can be managed in a separate institution with a policy of permanent appointment and tenure. This essay argues therefore that the solution for Ontario is unlikely to be exactly that now being tested in Britain, though many of the techniques being developed at the Open University and even some of the material, are of great interest to Ontario and probably applicable to our system.

7. The University Teacher and the Cooperative Project

Even if cooperative approaches can make a useful contribution to university teaching they will do so only to the extent that they are endorsed by faculty. One can legislate a system for coordinating the efforts of universities but one cannot legislate cooperation between men. In a group as jealous of its independence as the university teachers, one cannot even use gentle pressure.

It is important therefore to look at what developments have already taken place, at the procedures usually used, and at the current attitudes of staff. Against this background the potential advantages and disadvantages and mechanisms proposed can be judged. For purposes of this discussion, cooperation between departments of one university, or even within one department, pose some of the same problems as inter-university cooperation and will be considered.

The inter-disciplinary trend, so marked in recent years, runs some risk of becoming a band-wagon movement, but it has a real basis and value even if often overdone. Departments are being brought out of their isolated ivory towers and into more intimate contact with each other. Joint programs, often supported by institutes, joint appointments, and sometimes joint courses are common today although they account for only a small proportion of the total offerings of a university.

A significant number of university professors have therefore already had experience with cooperative projects outside their department. In addition, there is a steady movement--very marked in many departments--for individual courses to be shared by several teachers.

Looking at staff involvement in cooperation in historical perspective we see we have already moved some distance toward cooperation, though as with some of the long established forms of university cooperation mentioned in the introduction, this has often not been recognized. The progress that staff have already made along this road has shown some advantages or the trend would surely have been arrested instead of developing steadily over recent decades. Nevertheless, there have been problems. In principle, most staff accept that a cooperative approach will give them a more limited responsibility and an interesting exchange of ideas with their associates in the program. At the same time, most have strongly vested interests. These may be in a particular approach to a subject, in recruiting students for their own graduate programs, in maintaining a favoured position for their department, or, if the program includes both professional and liberal arts students, in the

special interests of their professional group. Some of these vested interests relate to the status of themselves or their departments in the university, some to their position in the scholarly community and especially to their ability to maintain a "productive" group and to attract research grants.

These vested interests are to some extent inescapable and cannot but produce a measure of suspicion and rigidity which will be hidden when a proposal is first put forward but will become increasingly marked and explicit as the project is brought forward and specific plans made. There are four ways in which suspicions and fears can be reduced. These are to modify the system of support for research and graduate students, to increase the precision of definition of objectives of the cooperative project, to emphasize the advantages to the staff member in terms of more rational specialization, to recognize, perhaps initially in a slightly exaggerated way, the contribution made by those who provide critical leadership to cooperative projects.

These ways of fostering cooperation need little or no explanation except perhaps that dealing with objectives. Two or more people cannot cooperate until they have agreed upon objectives. Nor can they, or anyone else, judge whether their cooperation has been productive unless its results can be judged against a precise statement of what it set out to do. Such clear-cut statements, refined and subdivided into operational rather than philosophical objectives, are rare in university programs. When groups meet to consider joint efforts they often do so with only a vague idea of what they are trying to accomplish. If each participant must define his own objectives and each feels that his colleagues are doing the same, there is ample room, sometimes ample justification, for suspicion and doubt.

For two reasons then, success in cooperation depends upon a more disciplined approach to defining objectives. This is in itself a laudable objective because efficient pursuit of an objective requires its definition and it can be argued that a good deal of inefficiency in universities now stems from vague objectives.* An astonishing amount of what we now teach might be found unnecessary or redundant if we put ourselves and our programs through a searching study. This then is a requirement for effective cooperation and is one of the major contributions which a cooperative approach might make.

This argument suggests that university staff are on the whole well disposed to cooperation, but are held back by certain influences which the university could remove or at least reduce. However, the history of cooperative projects

*This point is made more eloquently, if in a slightly different context by Norman MacKenzie, et al. (14)

and the points made above suggest that unless the influences which shape the actions of staff in this field change radically then participation will be sharply concentrated in certain fields which tend to be peripheral to the main work of the university. The activity spectra of consortia in the United States shown in Figure 3, page 43, illustrate this. Cooperative projects, as with any other kind, usually have their origin with one man who has a special interest and sees that he can further this best via a cooperative approach. The advantages are most evident when he needs facilities or equipment which are expensive and will inevitably have more capacity than he can use. This type of cooperative project has been widely accepted. Indeed, it has become a standard part of the art of grantsmanship. Examples of it are too well known to need listing.

The advantages of cooperation are far less clear for approaches which do not have an immediate and obvious need for collaboration to make them feasible. It is probably for this reason that staff have not given serious consideration to the possibility that cooperation may go some way to solving very much more mundane and day-to-day problems such as inadequate time to prepare top-quality material or the related problem of avoiding pointless redundancy, or a critical appraisal of objectives. There are powerful influences which win support for glamorous, band-wagon approaches which may be desirable but not essential. At the same time there is no comparable support for looking at the basic problem of wise utilization of staff time. Indeed, one could say that although staff are well disposed in principal to cooperative ventures they are currently influenced toward proposing and supporting only a narrow range related to funding projects involving shared facilities.

Some of the projects which are currently being supported and promoted should be looked at with skepticism. This is not because their objectives are inherently undesirable, but because their impact on the university has not been considered carefully enough. For example, the range of inter-disciplinary programs now being developed cooperatively via joint committees or institutes makes one wonder what kind of administrative nightmare we may be creating within the universities. As suggested before, an inter-disciplinary group may form ostensibly as a bridge between two established departments. However, the end of such bridges often erode away rather quickly, leaving three isolated islands. A further problem that such groups can create is to compete with established departments for funds and students. Because they are new groups or in the fashion of the moment, they are likely to win. This puts great pressure on all those in related fields to reorganize in new and competitive ways. One of the greatest threats of cooperation as now practiced is through selective support for only certain types of projects, some of which are accep-

table but only marginally desirable. Such disadvantages of cooperation can be reduced by critical analysis of the relations between departments and institutes, and of the need for formal inter-departmental and inter-institutional interchanges.

It is proper that most of the initiative for cooperation should come from the staff. It does not follow, however, that all initiative which comes from the staff will be laudable. In general, the present system fosters cooperation only in new areas or where expensive special facilities or services are needed, and these tend to compete with rather than support essential departmental programs. They thus impose a threat of an uncontrolled and unplanned change in much of the administrative structure of the university.

Incentives for cooperation within the framework of the universities main programs are needed. They will require a good deal of critical and disciplined examination of the objectives and methods, and this exercise will provide the best antidote to any disruptive effects of excessively specialist or band-wagon types of programs.

8. A Practical Approach to Cooperation in Ontario

There can be real advantages in cooperation between universities. The only successful route towards achieving this is by creating a system which invites the formulation of cooperative projects and facilitates their realization. However, the problem of achieving more desirable cooperation, especially in teaching programs, are formidable. Some of the difficulties involve finances, some communications, and some administration.

What is needed is an organization which provides expert evaluation of proposals and advice on how these can be achieved, and either provides money for seed grants, or at least can recommend support to bodies which have such funds. A permanent secretariat which provides advice or support has been set up by virtually all the major American consortia. There have been many advantages to this system but there may also be disadvantages in establishing a professional directorate too early in the development of such a system. A study group approach seems a wiser way to begin.

An appropriate way of sponsoring cooperation in Ontario would be through a series of summer institutes made up of five to ten interested persons charged with examination of a range of potential projects and then with drafting a working plan for the succeeding budget year. Such a group would have changing membership from year to year, though hopefully also some continuity. It could receive suggestions from anyone. But, failing receipt of suggestions, it would examine the current work of the universities and would propose experimental programs in which it would invite participation.

The first year's assignment might well be to consider mechanisms of coordination of extramural programs, the second year the arrangement of trial graduate courses based on pooled staff resources, the third a look at the problems of specialization especially as it is felt in the small departments, the fourth a trial program of undergraduate instruction perhaps by EVR tapes and seminars.

At any time this sequence of special topics could be altered, or a full-time secretariat added to the system. It could be assumed that someone in the offices of the CPUO could provide the minimum amount of administration needed for any programs which were recommended and approved, or one university could act as Manager for the consortium.

The problem of financial support is an important one. The CIC attitude that direct assessments should not be made

against the normal operating budgets of member universities is too restrictive. Indeed, one can argue that if cooperation has no implications for the regular day-to-day issues of the university it is not an issue of major importance and its influence towards special funding, fragmentation of fields, and excessive topicality may make it undesirable.

There should be a prior commitment to provide seed grants and if cooperative programs are proven advantageous pooled operating funds on a continuing basis, but there will obviously be a desire to keep the initial risk capital low. The CIC experience, said by some of their staff members to be the expectation for any other group, is that it may take a decade to make significant changes in attitudes and programs. This slowness of development argues against setting up a permanent consortium office. A staff of several persons, say on a $100,000 budget, will have spent half a million before having much effect. To this must be added at least ten seed grants which might be of equal size. The test program in this form represents a minimum of one or two million dollars.

By contrast a series of reports by study groups dealing with specific projects might cost two months salary for five persons plus some seed grant money. The case for specific projects would be argued rather more fully in a study group such as this and the seed grant would often be replaced very soon by levies against regular operating funds. The cost per year should be about half that of the permanent secretariat and the critical appraisal of the project in terms of actual campus conditions should be better. It is, however, essential that a fairly senior officer in an existing secretariat should always be available to receive proposals and to advise on procedures.

No significant progress towards more cooperation will be made unless there is on each campus an atmosphere conducive to the development of cooperative projects. Such an atmosphere depends upon three things. (1) An organization within departments which encourages debate about objectives and gives full credit to contributions to that debate. (2) Creation and advertising of a system for assisting in development of cooperative projects. (3) An initial funding of projects in a way which does not compete directly or obviously with other demands generated in the same department. The view that a bird in the hand is worth two in the bush applies with great force when staff are choosing between a concrete asset worth say $10,000 and a possible, but not readily measurable, improvement in a teaching program. Experience has already shown that department chairmen are too close to the direct demands of staff to be willing to earmark funds already in their control for experimental approaches.

In setting up a study committee or commission it

would be desirable to involve all of the universities in the general debate. But this should not imply that there need be an overall consensus within the consortium with respect to any particular project. Inherent in the concept of diversity in the Ontario system is the idea that there can be equally legitimate programs with quite different approaches or emphases. Among a group of a dozen different institutions it would, therefore, be expected that four might agree on one approach, two on another, and the rest remain aloof. It would be unfortunate if cooperation between universities were supported only when general participation was involved.

The recent trend in Ontario has been to encourage each discipline to work together towards cooperation. One of the most important parts of cooperation being an amicably agreed upon pattern for specialization. Such cooperation has real merit and should certainly be continued. It provides for a more effective communication between departments in one discipline than has obtained hitherto. Other ways of increasing communication, such as a system of telecommunications linking the various universities as in Indiana and California, might well be justified. However, in any one discipline it is unlikely that a meeting of representatives from different universities will have many present who are experienced in the broader issues of university work, or in the techniques and problems of cooperation and who can also give time to detailed study of projects. The group is made up too much of those who have fought for a limited budget and feel themselves responsible primarily to their departmental colleagues.

In summary, the practical approach to cooperation in Ontario might be:

1. Acceptance of the principle that the value of cooperation must be justified for each individual project.
2. Establishment of a commission on planned diversity in Ontario university education.
3. Establishment of a panel each year for five years to study the work of the provincial universities and to recommend each year one cooperative project which the panel feels clearly justified as a test program.
4. Continuance of the present structure of committees of heads and some attention to ways of improving communications between them still further.
5. Designation of someone in the organization of CPUO as coordinator of cooperative projects and secretary of the panels referred to in (1) and (2).

6. Encouragement on individual campuses of a more careful definition of objectives and an examination of whether cooperation is a means towards more effective attainment of these.

9. Summary

Neither inter-university cooperation itself nor the trend towards increased levels of cooperation is new. What is new is the high rate of increase in cooperation, coupled with an increase in the range of activities of consortia. This range has now embraced virtually the complete spectrum of university activities from the purely administrative to the purely scholarly but with a strong bias towards provision of ancillary or inter-disciplinary programs. The issues of cooperation for university teaching has hardly been considered. Yet, the developing patterns of specialization, the wider range of responsibilities facing university staff members, and the need to put the available staff effort into those activities which will contribute most to the university, all indicate that increased cooperation in selected areas can reduce some of the universities' current problems.

The relation between cooperation in teaching and uniformity in educational programs is important. The argument of Section 2 is that with little cooperation we have a high degree of uniformity. While it is easy to find specific, often minute ways in which similarities would be fostered by cooperation the main pressures towards uniformity are independent of the level of cooperation. Indeed, cooperation can provide for two essential antidotes to excessive uniformity--time for more attention to the objectives of a teaching program and time to make an individual interpretation of the subject in direct collaboration with the student. On balance, the argument that uniformity will be increased by increasing cooperation is not a convincing one. Certainly not convincing enough to justify not conducting experiments in cooperation. It may indeed be that cooperation is the only effective route to maintaining diversity.

The view that cooperation can foster diversity has a good deal of support, some from those involved in the consortium movement, some from those who stand well clear of it. In "Dialogue on Higher Education" (12), A.L.P. Norrington, of Oxford, is quoted as saying:

> "one thing is clear; the Oxford system is only worth keeping if the colleges retain the valuable elements in their independence. This they will not be able to do unless they surrender some of their seemingly important sovereign powers. In other words, the colleges must fit into the picture of Oxford as a whole in order to retain their individuality."

Paltridge (21) writing of statutory coordinating

systems in the United States has proposed that "coordination can serve as a protector rather than an adversary of the substantive autonomy of institutions" and Adrian (3) has said:

> "if what these and other leaders in higher education are saying is true the voluntary consortium movement may be the key to the maintenance of constructive diversity in higher education. It is paradoxical that institutions may find it necessary to give up some institutional autonomy in order to maintain diversity within the totality of higher education."

If real diversity is desired it now appears that it must come from a result of coordination based on cooperative planning.

Paul Weiss (26) has argued this point from the viewpoint of the biological scientist and has developed the thesis that an evolution of university systems into consortia is logical and necessary. He says:

> "evolutionary reasoning thus can condone neither an anarchic individualism nor an autarchic scheme of mass conformity. Applied to the universities this means evolutionary repudiation of both extreme indulgence in individual predilections and absolute submission to any uniform mission, that is, other than the call to serve. Universities must not renounce diversity and individual identities but they must learn to contribute harmoniously to group performance less haphazard in its total aspect than heretofore. In short they must ascend from the state of a loose mosaic to that of a cohesive system of diverse, mutually complementary, and sensitively interacting, parts or partners."

Weiss is more concerned with coordination than with cooperation as defined in this study but his argument for diversity and the relationship of diversity to specialization is a valuable contribution.

Both the history of university development and the more abstract arguments about specialization draw our attention to the need for inter-university cooperation. At the same time the possibilities exist of inappropriate application designed by special interest groups with no thought for the overall implications of their proposals. A critical and experimental approach is needed. Some of the current developments could be appropriately, if not charitably, described as opportunistic.

It is appropriate here to re-state that the motive for cooperation should be efficiency not economy (9). The question of saving money through cooperation has not entered

into the development of any of the arguments put forward in this essay. This is not to deny that total costs must be considered. But it has been assumed throughout that we work within a limited budget of money, of numbers of staff, and of time for any one staff member. Given these unavoidable restrictions the question which has been asked repeatedly is--can we do a better job with current resources of money and time. This is equivalent to asking whether a cooperative approach can provide more for students and a better system for staff than can a system of essentially isolated units. This is a question which has to be considered separately for separate functions of the university, but the overall conclusion is that for different reasons cooperation can improve teaching at the junior levels, at the graduate levels, and can also improve research.

This is not a claim that inter-university cooperation is a panacea. But where problems now exist the possibility that a cooperative approach would help solve them should be carefully investigated. This is the approach suggested for Ontario. Here we have a system of extramural and continuing education which is competitive, essentially anarchic, and ill-adapted to the job to be done. All this in spite of the laudable efforts of directors of extension to work together. In its present organization there is little likelihood that the provincial system can fulfill its responsibilities of today, much less the vastly increased responsibilities it should assume tomorrow. Because there are dangers in centralization and separation from the other universities a consortium is proposed rather than an open university.

In the field of graduate work Ontario also has the problem of having created a large number of ostensibly equal universities, all staffed by specialists and all hoping to be involved in graduate work at all levels. But these universities cannot really be equal either in size or quality. The attempt to rationalize the Ontario system through centres of excellence with groups in each university specializing is neither realistic in practice (though examples of its working well can, of course, be found) nor fair to the undergraduate program. Rationalization via strongly cooperative graduate programs is an alternative approach which has its complications but looks, in principal, a better system.

These are the principal, but by no means only, areas of cooperation of interest to the Ontario system. The formalities of cooperation in Ontario are currently in a state of rapid evolution and should be able to adjust to the wide potential implications of cooperation. But this adjustment should not take the form of a too elaborate centralized structure which might well develop a doctrinaire approach or might push cooperation only along administrative lines or for ancillary programs. What is needed is a simple system for promo-

ting projects which arise primarily at the staff level and facilitating these by provision of risk capital. This requires some central organization which should act in part as devils advocate forcing critical definition of objectives, raising objections, foreseeing difficulties, and only after this assisting with funding and organization.

The contribution which a cooperative system can make to university education is probably as much through the encouragement of critical definition of objectives in more operational terms as through facilitation of projects. The study group approach to defining specific projects worthy of support has the advantages of not involving a major central office, of involving teaching staff directly, and of providing time and an environment which is conducive to both the consideration of objectives and the elaboration of strategy. It has the added advantage that it is likely to be a good deal more economical.

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